



**FOREIGN
BROADCAST
INFORMATION
SERVICE**

JPRS Report

Telecommunications

19981208 164

DTIC QUALITY INSPECTED 3

Telecommunications

JPRS-TTP-92-009

CONTENTS

20 October 1992

INTERNATIONAL AFFAIRS

European Cooperation on D2-MAC Standard, 16/9 HDTV Format [Paris LE MONDE 19 Jun] ..	1
European-Russian Telecommunications Joint Ventures	1
RTT/Belgacom, Alcatel Bell	
[Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE 29 Jun]	1
France Telecom	
[Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE 29 Jun]	2
CIS, Italy Sign Telecommunications Accord [Milan ITALIA OGGI 15 Jul]	2
East European Project Joined by Swedish Telecom	
[Stockholm SVENSKA DAGBLADET 30 Aug]	2
Swedish, Japanese Firms To Form Digital Mobile Phone Venture	
[Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE 24 Aug]	2

SUB-SAHARAN AFRICA

REGIONAL AFFAIRS

Pan-African TV Entertainment Channel Launched	
[Johannesburg ENGINEERING NEWS 28 Aug]	4

GHANA

Two New TV Transmitters in Volta Completed [PEOPLE'S DAILY GRAPHIC 29 Jun]	4
--	---

SOUTH AFRICA

Participation in Satellite Project Envisaged [ENGINEERING NEWS 21-28 Aug]	5
Satellite Tracking Station To Be Upgraded [ENGINEERING NEWS 24 Jul]	5

CHINA

Fujian Plans Major Post, Telecommunications Construction	
[ZHONGGUO XINWEN SHE 13 Aug]	7
Radio Report on Opening of Hunan Economic Radio [Changsha Radio]	7
Hainan Sets Up First Commercial Radio Station	
[Haikou Hainan People's Radio Network 8 Sep]	7
China International Begins Broadcasting to Hong Kong, Macao [XINHUA]	7
Construction To Begin on Nation's Largest Satcom Network [KEJI RIBAO 23 Jun]	8
Province's First Satellite Earth Station in Trial Operation [DIANXIN JISHU Aug]	8
Guangdong Mobile Telephone Network: Asia's 'Largest' [ZHONGGUO XINWEN SHE]	8
Corporate Executive Looks at Telephone Industry [ZHONGGUO DIANZI BAO 20 Jul]	8
Shanghai's Eighth 5-Year-Plan Targets Released [DIANXIN JISHU Jun]	10
Fiber-Optic-Cable Construction Progressing [DIANXIN JISHU Aug]	10
Three Fiber-Optic Cables To Be Built in Guangzhou [DIANXIN JISHU Jun]	10
Single-Mode 565 Mbps Digital Optical Transmitter Developed	
[DIANZI KEJI DAXUE XUEBAO Jun]	10
Changde Digital SPC PBX Production Line Passes Check [ZHONGGUO DIANZI BAO 10 Aug] ..	11

EAST ASIA

CAMBODIA

'High-Level' Delegation Examines Malaysian Planning [Phnom Penh Radio]	12
--	----

PHILIPPINES

- New Radio Program on Government Begins on 6 Oct [MALAYA 5 Oct] 12

EAST EUROPE

HUNGARY

- MATAV's Sat-Net Satellite Service Described [SZAMITASTECHNIKA 2 Jun] 13
Ending of Frequency Moratorium Considered [HETI VILAGGAZDASAG 11 Jul] 13

POLAND

- Development of Private TV Stations Discussed [PRZEGLAD TYGODNIOWY 9 Aug] 14

ROMANIA

- Siemens Fiber-Optic Cable Links Capital Centers [ROMANIA LIBERA 15 Jul] 16

YUGOSLAVIA

- Macedonia as Telecommunications Corridor [Skopje NOVA MAKEDONIJA 31 Aug] 16

NEAR EAST & SOUTH ASIA

REGIONAL AFFAIRS

- ARABSAT To Purchase 2 Satellites From Hughes [Cairo AL-AHRAM 5 Oct] 18
Voice of Kurdistan Revolution Reveals Station Location [Voice of Kurdistan] 18

BANGLADESH

- Manufacture of Dish Antenna Permitted [THE BANGLADESH OBSERVER 17 Jul] 18
Parliament Informed of Television Plans 18

EGYPT

- Minister Inaugurates Telephone Exchange 19
Details on Exchange [AL-JUMHURIYAH 13 Jul] 19
Development Praised [Cairo Radio] 19

INDIA

- Progress in INSAT-2A Operations Reported 19
Weather Pictures Sent [THE TIMES OF INDIA 5 Aug] 19
Commercial Use Begins [THE HINDU 14 Aug] 20
Minister Dedicates Mobile Satellite Station [THE SUNDAY TIMES OF INDIA 12 Jul] 20
Fairness Urged in Satellite Frequency Allocation [THE HINDU 14 Jul] 21
Sale of Satellite Technology Contemplated [THE SUNDAY TIMES OF INDIA 23 Aug] 21
Papers Give Details on New Satellite System 22
Development Challenge [THE TIMES OF INDIA 9 Jul] 22
Successful Operation [THE HINDU 11 Jul] 23
Participation in Submarine Cable Project Planned [THE TIMES OF INDIA 1 Aug] 23
Writer Reviews Improvement in Telephone Service [THE TIMES OF INDIA 17 Aug] 23
Papers Report Plans for Broadcast Services 24
Scheme for Private Producers [PATRIOT 10 Jul] 24
FM Technology, Data System [THE TIMES OF INDIA 24 Jul] 25
Deputy Minister's Report [THE HINDU 24 Jul] 26
South Asian Television Channel Planned [INDIAN EXPRESS 9 Aug] 26

IRAN

French Alcatel To Launch 'Zohreh' Satellite [London KEYHAN 13 Aug]	26
PTT Minister Gharazi Interviewed [Tehran Radio]	27
Telephone Communication Network Expanding [London KEYHAN 1 Oct]	27
TV Satellite Station Launched in Ilam [Tehran Radio]	28

IRAQ

Turkish Paper Reports 30-Minute PKK Radio Broadcast 2 Oct [Istanbul SABAH 10 Oct]	28
---	----

LEBANON

Kuwait Extends Loan for Telephone Network Renovation [Beirut Radio]	28
---	----

COMMONWEALTH OF INDEPENDENT STATES

ARMENIA

Leaders Agree on Karabakh TV Broadcasts [SNARK]	29
New Industrial Information Service 'GIND' Established [ARMENPRES]	29
New Kurdish Radio Program To Promote Independent Statehood [SNARK]	29

AZERBAIJAN

Ministry Examines Communications Systems Situation [Baku Radio]	29
---	----

ESTONIA

Estonia Plans To Modernize Phone System [THE BALTIC INDEPENDENT 21-27 Aug]	29
--	----

WEST EUROPE

CYPRUS

Church-Run TV in Financial Bind, Drawing Few Viewers [ALITHIA 6 Aug]	31
--	----

DENMARK

Teledata Closes; Diatel Operations Outlined [BERLINGSKE TIDENDE 23 Sep]	31
ISDN Subscriptions Increasing Rapidly [BERLINGSKE TIDENDE 15 Sep]	32

FRANCE

Matra, Northern Telecom Establish Partnership [Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE 13 Jul]	32
Telecommunications Minister on Deregulation [ENTREPRISES & TELECOMMUNICATIONS Jul-Aug]	33
Philips Offers Full Range of SDH Equipment [ELECTRONIQUE INTERNATIONALE HEBDO 11 Jun]	36
Alcatel-Bell Develops Multipurpose Image Codec [ELECTRONIQUE INTERNATIONALE HEBDO 25 Jun]	36

ITALY

Telecommunications Sector To Be Restructured [LA REPUBBLICA 27-28 Sep]	37
--	----

SWEDEN

'Fierce' Competition for GSM Mobile Network [SVENSKA DAGBLADET 30 Aug]	38
Stockholm Commercial GSM Net by September [SVENSKA DAGBLADET 16 Aug]	39

Growth of Mobile Phone Industry Tracked	[DAGENS NYHETER 17 Aug]	40
Televerket Cuts Investment by One-Third	[DAGENS NYHETER 1 Sep]	41
Ericsson Eyes Asia in New Market Strategy	[DAGENS NYHETER 7 Aug]	41

TURKEY

Avrasya TV Programs Said Unsuitable for Turkic Republics	[GUNAYDIN 21 Sep]	42
--	-------------------	----

UNITED KINGDOM

British Telecom World Market Plans Leaked	[THE DAILY TELEGRAPH 1 Sep]	42
New Generation of Microchips Developed	[THE DAILY TELEGRAPH 10 Aug]	43

European Cooperation on D2-MAC Standard, 16/9 HDTV Format

92WS0660C Paris LE MONDE in French
19 Jun 92 p 16

[Article by Michel Colonna D'Istria: "Manufacturers and Broadcasters Join Forces To Promote HDTV"]

[Text] Representatives of 38 European companies involved in television approved an interindustry agreement on Monday, 15 June in Brussels. The accord affirms their plans to promote the development of the D2-MAC [Definition-2 Multiplexed Analog Component] standard and the 16/9 rectangular screen format, thus paving the way for European high-definition television (HDTV).

The memorandum had been prepared long before, under the aegis of the European Commission, as the third pillar of Europe's HDTV strategy. The other two are the directive on satellite broadcasting, which forces only new broadcasters to adopt the D2-MAC starting in 1995, and the Commission's plan of action. But most of the concrete decisions concerning the financing of the plan (a five-year package of 600 million to 850 million ECU's [European currency unit]) have been postponed until November (see LE MONDE 9 June). Only 33 million ECU's are available for 1992. And the signers of the memorandum—which is not legally binding—were careful to make its implementation conditional on "adequate funding." Furthermore, the text must still be ratified at the highest levels in each company, which is not a given everywhere.

These major reservations aside, the agreement represents "an important step in implementing advanced television in Europe," in the words of the European technologies commissioner, Mr. Filipo Maria Pandolfi. According to the French Postal and Telephones minister, Mr. Emile Zuccarelli, it gives "a true European dimension to the D2-MAC standard."

The Importance of the 16/9 Format

Signers of the memorandum include the continent's three principal manufacturers (Philips, Thomson, and Nokia), cable operators (including the Lyon and General Water Companies), satellite operators (including France Telecom and SES-Astra), and the main European broadcasters. The latter are A2 and Canal Plus in France, BBC and BSkyB in Great Britain, RTL-Plus, ARD, and ZDF in Germany, and RAI and Fininvest in Italy. The agreement remains open to other partners.

The signatories stress HDTV's "strategic importance." They would like to see rapid growth in satellite-television services and the 16/9 big-screen format. "In this context," the statement of principle reads, "the D2-MAC exists, and offers an immediate means of broadcasting to 16/9 format via satellite and cable." But, by request of the Germans in particular, the text as a whole emphasizes the 16/9 format over the D2-MAC. Satellite and cable network operators have therefore promised to provide sufficient broadcast capabilities, and manufacturers to market large quantities of receivers at attractive prices. Broadcasters are invited to produce programs adapted to those standards, and to prepare stations using the 16/9 format. To finance the

projects submitted to it, the Commission will seek the counsel of a consortium to be formed by the signers of the memorandum.

The memorandum will be revised every two years to reflect results, and will remain effective "as long as the financial support provided for in the Community's plan of action is available." This clearly underscores the limits of the consensus: The 16/9 format, which is acknowledged the world over as the future of HDTV, is more important than the standard. Moreover, since neither the directive nor the industry agreement is very restrictive, subsidies are more crucial than ever in shifting from intentions to deeds and ensuring the success of the Commission's three-part plan.

European-Russian Telecommunications Joint Ventures

RTT/Belgacom, Alcatel Bell

92WS0678EE Chichester INTERNATIONAL
TELECOMMUNICATIONS INTELLIGENCE
in English 29 Jun 92 p 4

[Text] RTT/Belgacom and Alcatel Bell have again joined forces with Russian partners to create a new joint-venture company that will be destined to improve international telecommunications between Moscow and the rest of the world.

The new company, the second in which Alcatel and Belgacom will be involved, will be called World Trade Telecom, and will be owned by the two Belgian companies, each with 15.5 percent of the capital, and by Sovincenter and Comincom, which will have 65 percent and 4 percent of the shares, respectively. The first joint-venture company, Combella—created by Comincom as the majority partner, itself a holding company within the Ministry of Foreign Affairs and majority-owned by the Russian commercial bank Orbita, Alcatel Bell, Belgacom and MGTS, the Moscow local PTT, in April 1991 (see ITT Issue 290)—is already operating in Russia and will provide World Trade Telecom with access to its existing infrastructure. It is hoped that World Trade Telecom will be operational by October 1992.

Signals will be transferred to Combella's Alcatel 1000 S12 switch and from there to an earth station situated 30 km from Moscow. From that earth station signals will be transmitted via Intelsat to the Belgian earth station complex at Lessive. From there, they will be directed towards the International Alcatel 1000 S12 gateway operated by Belgacom in Brussels for transmission to the rest of the world.

Combella was established to build an overlay network in Moscow to serve government and business customers with international requirements. At the announcement of its creation, Alcatel said that the network would be expected to serve 2,000 customers by the end of 1991. However, it now transpires that Combella has only 450 subscribers, although monthly international traffic from Moscow continues to grow.

The distinction between the two companies is in the type of customers they will be serving and the geographical locations of those customers. Combella is already serving

customers in and around the Ministry of Foreign Affairs, primarily government offices, embassies, and a number of international hotels. Over and above these customers, Combella's area of operation is only restricted to "the Moscow area." World Trade Telecom will be serving customers only around the Hammer Center, approximately 150-200 offices, two international hotels and "a limited number of apartments."

Sovincenter is an association of the customers who will be located within the operating area of World Trade Telecom.

France Telecom

92WS0678FF Chichester *INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE*
in English 29 Jun 92 p 5

[Text] France Telecom announced its intention to enter the Russian domestic and international telecommunications market last week when it announced that it had signed a Memorandum of Understanding with the Russian company Zimland Telekom to form a joint-venture company before August 15 to provide telecommunications services in Russia.

Zimland Telekom comprises the different public telecommunications and broadcasting companies in the Kaliningrad Free-Trade Zone. It is licensed to provide telecommunications service in the Free Trade Zone and will, therefore, allow the new joint venture to become the operator for the entire region.

France Telecom said that network development will take place in two main phases, although an immediate initial phase will allow services to begin straight away. Initially, international access equipment is to be installed in Kaliningrad to provide international services to 200 subscribers. Following this, the first main phase will see the installation of ground earth station and its linkage to an international/national transit switch. This will allow 20,000 subscribers to be linked to the switch, including, France Telecom says, 2,000 businesses. Phase One will last 12 months.

During the second phase, France Telecom says, the existing public network will be renovated and expanded to allow 200,000 subscribers to be connected to the network.

The MoU is currently before Russian authorities awaiting approval.

CIS, Italy Sign Telecommunications Accord

92MI0641X Milan *ITALIA OGGI* in Italian
15 Jul 92 p 13

[Text] STET [Turin Telephone Holding Company] has signed a protocol of agreement with the Russian Ministry of Communications and Intertelecom in Moscow that gives rise to the ITUR project.

"The ITUR project," reads the press release, "provides for the development of a telecommunications link using submarine fiber-optic cables to connect the Palermo node with Novorossiysk (Russia) via Istanbul-Odessa. Novorossiysk will also be connected with Rostov (on the Don river) and Moscow via a ground link on Russian territory and two international telephone exchanges in Moscow and Rostov."

This project will extend the range of international telecommunications links in Russia and facilitate the modernization of networks to meet growing needs of business users created by the establishment of new industries in the country including the Don region. The STET group companies involved in the project are: Italcable [Cable and Radio Services], Sirti [Stock Company for Research, Design, and Installation of Telecommunications Facilities], and Italtel [Italian Telecommunications Company].

East European Project Joined by Swedish Telecom

92WT0236A Stockholm *SVENSKA DAGBLADET*
in Swedish 30 Aug 92 p 21

[Article by Gunnar Johansson: "Televerket Wants Russian Orders"]

[Text] The telecommunications authorities in Sweden, Norway, and Finland have joined forces in a consortium aimed at building up a GSM [Global System for Mobile Communication] mobile phone network in the St. Petersburg area.

St. Petersburg and five other densely populated regions in Russia have obtained a license for GSM, the digital system that 18 European countries have decided to build up in the next few years.

"We have high hopes of getting the job," said Bo Magnusson of STI, Swedish Telecom International.

STI, in cooperation with Finland's telecommunications authority and interested local parties, has previously established functioning mobile telephone operations in Estonia, Latvia, and Poland. Lithuania Comvik, in cooperation with the Danish telecommunications authority, has succeeded in penetrating the market and taking command. It is primarily NMT 450 that has found a market there.

A major expansion of the network is planned. Line telephones in the area are limited and an emphasis on mobile telephones will enable the Baltic states to "leap over" the line-telephone phase to some extent. "In our opinion the analog NMT system will have clear advantages over GSM in this region in the next few years," Magnusson said.

Swedish, Japanese Firms To Form Digital Mobile Phone Venture

92WS0807K Chichester *INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE*
in English 24 Aug 92 p 19

[Unattributed article: "Ericsson and Toshiba To Form Joint Venture"]

[Text] Ericsson and Toshiba Corporation have announced that they are to establish a joint-venture company in Japan which will develop and manufacture Japanese-standard digital mobile telephone systems. The two companies said they hope the alliance will lead to further cooperation between them in the telecommunications area.

The new company, to be called Ericsson Toshiba Telecommunication Systems K.K., will be established on September 1st 1992 and headquartered in Yokohama. Initially capitalised at 200 million yen, the venture will be owned

60 per cent by Ericsson and 40 per cent by Toshiba. Ericsson intimated at the beginning of this year that it was seeking a Japanese partner (See ITI issue 323).

Ericsson Toshiba Telecommunications systems will design, supply, install, maintain and service digital mobile telecommunications systems for the Digital Phone group of companies that are scheduled to start operation in 1994. The alliance is believed not to include production of Toshiba's own cellular handsets at present.

In Japan, the 1.5 GHz frequency band was allocated to digital cellular mobile communications in 1991, and two new digital cellular mobile phone service companies that will offer nationwide communication networks were established. One of them, Digital Phone group, will construct nationwide stations by around the year 2000, under the management of regional operating companies. Digital

Phone will compete against NTT, Japan's domestic telephone company, and three or four others, not all of which would have a nationwide network.

Three regional companies, Tokyo Digital Phone K.K. (Tokyo area), Kansai Digital Phone K.K. (Osaka area) and Tokai Digital Phone K.K. (central Japan area) have already been established.

Ericsson Radio Systems is scheduled to ship digital cellular mobile base stations and exchange systems to Tokyo Digital Phone and Kansai Digital Phone (See ITI issues 341 and 348). After its establishment, Ericsson, Toshiba Telecommunication Systems will act as a representative organisation for Toshiba and Ericsson in this equipment supply business.

Ericsson and Toshiba expect the new business to generate 32 billion yen in sales in 1994.

Lars Edvardsson will be president and CEO, and Yutaka Hatano will be vice president.

REGIONAL AFFAIRS

Pan-African TV Entertainment Channel Launched

93WT0004A Johannesburg *ENGINEERING NEWS*
in English 28 Aug 92 p 3

[Article by Karen Sutton; boldface words as published]

[Text] M-Net's Pan-African entertainment channel will be broadcast across Africa from 1 September this year...but South African viewers will not be able to tune into the service.

Countries including Ghana, Cameroon, Kenya, Uganda, Tanzania, Malawi, Zimbabwe, Zambia, Botswana and Swaziland are first in line to receive M-Net International, as well as programmes from BBC World Services (BBC WS), which has appointed M-Net to manage its service in Africa.

M-Net divisional CE **Paul Edwards** tells *THE ENGINEERING NEWS* that South African viewers have shown "a lot of interest" in receiving BBC WS, but that it is currently not possible due to programming rights which were cleared for Africa but not for South Africa.

He adds that, although there are no current plans to include South Africa, this will be reviewed from time to time, especially if there is a great demand for it.

In order to receive the BBC WS, M-Net receives the international signal from the UK; the encryption is done in London, but is controlled locally by a central computer in Randburg.

Says Edwards: "We believe the project will be extremely viable for M-Net; within three years we should be turning over a reasonable profit."

He adds that M-Net has already signed up 3,000 subscribers in Africa via hotels and individuals who have satellite dishes.

"We are aiming for a minimum of 100,000 subscribers in Africa within three years, which is quite a conservative figure."

M-Net is currently negotiating to broadcast on a terrestrial basis as it does in Namibia.

This means the signal is brought down and retransmitted terrestrially with subscribers using normal antennae and not a satellite dish.

M-Net will not begin its own news broadcasting service in Africa, even though it had the licence to produce news in South Africa.

M-Net also operates in six European countries including Holland, Belgium and the Scandinavian countries via a channel called Film-net, owned jointly with Richemont and Luxemburg-based broadcaster RTL 4.

GHANA

Two New TV Transmitters in Volta Completed

92WT0216A Accra *PEOPLE'S DAILY GRAPHIC*
in English 29 Jun 92 pp 1, 8-9

[Text] Television signals are now available to about 70 per cent of the Ghanaian population with the completion of two new transmitters in the Volta Region, Mr. Ebo Tawiah, PNDC member, said at the weekend.

He said the last phase of the government's television expansion programme which will raise the percentage of receivers to 90 per cent will cover the Brong Ahafo Region.

The PNDC member was commissioning a new transmitter station for the Ghana Broadcasting Corporation (GBC) which is to serve the southern sector of the region at a colourful ceremony at Akatsi.

The remaining 10 per cent, he said, will consist of areas which because of their landscape and geographical location find it difficult to pick television signals.

The installation of the transmitters at Akatsi and Amedzofe forms part of government's programme to revamp and upgrade the country's communication infrastructure, he noted.

Mr. Ebo Tawiah said since 31 December, 1982, the PNDC has pursued a systematic programme for the rehabilitation of the national broadcasting network.

A similar programme of rehabilitation and modernisation of the facilities of the Posts and Telecommunications (P&T) Corporation has also been undertaken.

The result, he said, is that Ghana today can boast of an efficient telecommunication network which has allowed for better internal communication as well as easy contact with the outside world.

He said since the modernisation of telecommunication is capital intensive, the services enjoyed from P&T must be paid for by subscribers and viewers in order that the public can be assured of continuous service.

The PNDC member charged engineers and technicians in charge of the equipment to adhere to a maintenance programme so that the equipment gives Ghanaians many years of service.

Mr. Ebo Tawiah urged Ghanaians to take a keen interest in the unfolding event towards the country's Fourth Republic so that they can choose men and women who would work selflessly for the progress of the country.

The Director-General of GBC, Mr. George Aryee, said the two transmitters were successfully installed by Incomtel Limited of the United Kingdom at a total cost of 1,336,196 pounds sterling as part of the third phase of the government's television expansion programme.

He said a contract has already been signed between the GBC and the company to install a similar transmitter at Sunyani to complete the third phase of the programme.

Mr. Aryee said the next phase will ensure satisfactory television reception in all the "fringe" areas including Aowin, Suaman, Axim, all in the Western Region, Upper

Denkyira and parts of Lower Denkyira in the Central Region and Akyem Oda in the Eastern Region.

The Volta Regional Secretary, Dr. Francis Agble, urged the people to effectively utilise television reception as a vehicle in the country's reconstruction programme.

He said the expansion of TV should play a meaningful role of educating the mass of Ghanians, especially the illiterate, on government policies and programmes.

Present at the commissioning ceremony were Mr. Kofi Totobi Quakyi, Secretary for Information, Mr. Dan Abodakpi, Deputy Secretary for Trade and Tourism, and Mr. Patrick Seddoh, Chairman of the board of directors of GBC.

SOUTH AFRICA

Participation in Satellite Project Envisaged

92WT0242A Johannesburg *ENGINEERING NEWS*
in English 21-28 Aug 92 pp 1-2

[Article by assistant editor Robyn Leary]

[Text] South Africa is well-placed to get a stake of a \$32,000-million project to improve Africa's telecommunications infrastructure, reports African Development Bank (AfDB) infrastructure and industry director Kouassi Apetey.

Apetey, on his return from a regional conference on development in South Africa, said the country was considered "well advanced" and able to manufacture much of the equipment needed for the regional African satellite communications system (Rascom).

However, possible South African involvement in a project of this scale could not be confirmed by local players in the telecommunications industry.

Rascom was established in Abidjan in the Ivory Coast, following a resolution by Africa's Telecommunications Ministers in May this year.

The organisation's main objective is to provide, on a commercial basis, the space segment required for national and intra-African public telecommunications services, which will form part of an integrated African telecommunications network.

Apetey stressed that South Africa's participation would hinge on whether the country could sort out its political problems. Once it became a member of the Organisation of African Unity (OAU), South Africa would be eligible to take part in Rascom, he told the London-based magazine *AFRICAN ECONOMIC DIGEST*.

Although feasibility studies have already been completed, a decision on Rascom is still expected from Telecommunication Ministers who met last month in Yamoussoukro in the Ivory Coast.

A Telkom spokesperson reports that the South African utility is currently not involved in the Rascom project. However, he adds that it "will become a member of various African telecommunications organisations as soon as politically expedient".

Altech MD Llew Jones, whose company is currently involved in building South Africa's first satellite, Sunsat, due to be launched in June 1994, says Rascom is currently in "a state of flux" and progress is slow.

Sunsat, a research rather than commercial satellite, has stimulated interest of a satellite programme in South Africa. The development of a satellite-launching rocket by Denel is already well underway and the feasibility of a locally owned communications satellite is also being discussed (*THE ENGINEERING NEWS*, August 7, 1992).

The satellite will supplement South Africa's communications infrastructure and could provide broadcasting of education, television and telecommunications services as well as air, land and sea navigation services.

Although he cannot say whether South Africa will participate in Rascom, Jones maintains that a South African telecommunications satellite would not necessarily compete with the project; it could in fact be "complementary".

He confirms that Altech will be involved in "one way or another" in the development of a South African communications satellite; but that the project would be far too complex for only one player.

Satellite Tracking Station To Be Upgraded

92WT0219A Johannesburg *ENGINEERING NEWS*
in English 24 Jul 92 p 3

[Article by Kim Trollip]

[Text] Pretoria-based Simco Projects has routed local and international competition and romped home with the R12-million contract to upgrade South Africa's satellite tracking station at Hartebeeshoek.

The contract includes the design, construction, supply, installation and commissioning of two additional earth station antenna systems.

Despite strong competition from large international companies, the small but "vibrant" local company secured the project from Telkom.

Simco is an engineering project management company specialising in systems integration for voice, text, data and image in radio and telecommunication networks, airport systems and satellite communications.

The local fabrication of the structural steelwork as well as the civil and building works, will be carried out under Simco supervision.

The electronics side of the project will be carried out by Web Systems, structural engineering is the responsibility of Strydom and Roux, Tass is the steel contractor and Becker is responsible for the civil work.

Radiation Systems Incorporated (RSI) of the U.S., one of the world's largest and leading antenna manufacturers, will be the main product supplier for the turnkey project.

Web Systems, together with RSI, will be responsible for the technical system engineering and end to end performance aspects of the project.

The contract includes detailed systems layout, the correct sighting of the antennae and the overall electronics elements.

Speaking at the contract signing, Simco MD **Sidney Clark** said, "With the incorporation of these working relationships and the introduction of the know-how in South Africa, it would be a logical step to expand similar activities to other African countries."

Telkom MD **Danie du Toit** said the two satellite antennae being installed will serve as a back up system for traffic to be redirected if/when maintenance work is to be carried out on the seabed cable which runs from Melkbosstrand to Europe.

The antennae will also be used as a back up for maintenance and overflow of communication traffic on the existing three antennae at the earth station.

The telecommunications industry is undergoing an unprecedented technological revolution is immense in scale and reach, says Du Toit.

It has therefore become necessary to upgrade the Hartebeeshoek station in order to keep up with the demand for information.

Over 75 percent of Telkom's international telecommunications traffic is handled by the earth station.

The additional two antenna systems will complement the three existing systems.

Fujian Plans Major Post, Telecommunications Construction

HK1308151492 Beijing ZHONGGUO XINWEN SHE in English 1118 GMT 13 Aug 92

[Text] Fuzhou, August 13 (CNS)—Construction of posts and telecommunications in Fujian will develop at an unprecedented level over the next three years.

In the next three years, the telephone capacity in Fujian's urban and rural areas will be increased 3.3 times compared with the present to reach a total of more than 2.2 million telephones with 20 percent of city-dwellers becoming subscribers. Long-distance lines will increase annually at more than 10,000. Meanwhile, two ground satellite stations in Fuzhou and Xiamen will be built for portable telephones covering various cities, coastal counties and whole piece of land development zones across the province, linking with Pearl River Delta, Yangtze River Delta and major domestic city networks [as published].

A "priority" policy will be practised by Fujian's posts and telecommunication departments in the construction of telecommunication facilities with leasing or joint construction to meet the demands of whole piece [as published] of land development zones as well as of foreign investment zones for priority of communications services to foreign investors.

Radio Report on Opening of Hunan Economic Radio

HK1208142592 Changsha Hunan People's Radio Network in Mandarin 2300 GMT 8 Aug 92

[Excerpt] At 0620 on 8 August, with the beautiful signal music starting to play, Hunan Economic Radio officially came on the air. This indicates that the broadcasting cause in our province has made another step forward.

At 0900, Hunan Economic Radio hosted an inaugural ceremony in its broadcasting studio. Zhou Texin, director of the propaganda department of the provincial party committee; Shen Guofan, deputy secretary general of the provincial government; Wen Xuande, deputy director of the provincial party committee propaganda department and director of the provincial department of radio and television; Zhang Yunnan, vice chairman of the provincial economic commission; Xiong Shiquan, vice chairman of the provincial office of Taiwan affairs; Zhao Shuzhen, vice chairman of the provincial planning commission; Li Qinglin, secretary of the party team of the provincial radio and television department; and over 100 old and new friends from the relevant department of the provincial party committee and provincial government, as well as journalist units in the provincial capital attended the ceremony to convey their congratulations. [passage omitted]

Hainan Sets Up First Commercial Radio Station

HK1009061492 Haikou Hainan People's Radio Network in Mandarin 2300 GMT 8 Sep 92

[Excerpt] To assiduously implement the spirit of the speeches Comrade Deng Xiaoping made during his south China tour to promote Hainan's above-average economic development, with approval of the provincial Department

of Culture, Physical Culture, and Broadcasting, Hainan recently built its first commercial radio station, known as the Hainan Economic Radio Station. It will be on the air in October.

The setting up of a commercial radio station represents a bold step in Hainan's efforts to reform its broadcasting undertaking. Under the guidance of Hainan People's Radio, the station will be managed as an enterprise and will keep separate accounts and assume sole responsibility for profits and losses. [passage omitted]

China International Begins Broadcasting to Hong Kong, Macao

HK0810153692 Beijing XINHUA Hong Kong Service in Chinese 0816 GMT 28 Sep 92

[Text] Beijing, 28 Sep (XINHUA)—Listeners in the Hong Kong and Macao region will be able to receive Chinese- and English-language programs of the China International Broadcasting Station very soon.

This reporter learned today that the station will formally begin transmission to the Zhujiang Delta region on 1 October. By then, programs transmitted at 603 kilohertz on the medium wave and at 107.1 megahertz on frequency modulation will be heard in the Zhujiang Delta and in the remote islands nearby, as well as in the Hong Kong and Macao area.

This program airs daily for 19 hours from 0600 in the morning to 0100 the next morning in Guangzhouhua [Cantonese], Putonghua, and English. English language transmission will take up 11 hours, and four hours each for Guangzhouhua and Putonghua programs.

According to reports, through this program, the China International Broadcasting Station will accurately and promptly present to the listeners in the Zhujiang Delta and the Hong Kong-Macao area domestic and foreign political, economic, scientific and technological, cultural, and sports news. Aside from news and current events, the English language program will feature the following regular programs: "Open Window," "Chinese Culture," and music as well as sports. Meanwhile, the Putonghua and Guangzhouhua programs will feature the following: "Divine Land," "Wide-Angled View of the Native Soil," "Random Talks," "Colorful Weekend," and "Securities Market."

Chinese and English are the two principal languages used in the broadcasts of the China International Broadcasting Station. Chinese-language broadcasts includes Putonghua and Guangzhouhua, Kejiahua [Hakka], Xiamenhua, and Chaozhouhua, and are on the air for 34 hours of programming daily. It has been 45 years since the China International Broadcasting Station began broadcasting in English. Today, its English language broadcasts are aired, around the world, for 48 hours of programming each day, and have gained both a domestic and foreign following with their new format and colorful program features.

Construction To Begin on Nation's Largest Satcom Network

92P60367A Beijing KEJI RIBAO [SCIENCE AND TECHNOLOGY DAILY] in Chinese 23 Jun 92 p 1

[Article by Yan Yan [2518 3601]: "Construction To Begin on Nation's Largest Satellite Communications Network"]

[Text] On 21 June in Beijing, a contract was signed for construction of the nation's current largest satellite communications (satcom) network, the China Tongpei [4827 6792] Coal Mine Corp. satcom project (Phase II). In charge of the design and construction for this communications project is the Ministry of Aerospace Industry (MAI) satellite applications union, which in the next 18 months will complete design and installation of 62 communications stations. At completion time, the China Tongpei Coal Mine Corp. will have the nation's largest and best satcom network. It is understood that construction of 10 communications stations for the China Tongpei Coal Mine Corp.'s communications network (Phase I) project is now complete; Phase I design and construction were also undertaken by MAI's satellite applications union.

Province's First Satellite Earth Station in Trial Operation

92P60438C Beijing DIANXIN JISHU in Chinese No 8, Aug 92 p 47

[Untitled news brief by Fan Ji [5400 6549]]

[Text] Shandong Province's first satellite earth station—the Qingdao Satellite Earth Station—has now been put into trial operation. This new station should greatly relieve the overcrowded conditions now prevailing in telecommunications between Qingdao and major cities such as Beijing, Guangzhou, Urumqi, and Hohhot.

Guangdong Mobile Telephone Network: Asia's 'Largest'

HK0210143092 Beijing ZHONGGUO XINWEN SHE in English 1136 GMT 2 Oct 92

[Text] Guangzhou, Oct 2 (CNS)—The total number of mobile telephone users in 20 cities in Guangdong Province has reached 100,000, forming a network largest in scale and area of coverage in Southeast Asia.

It is learned that Guangdong has 3 million telephones and 800,000 pagers, both exceeding those in Hong Kong by more than 100,000. The number of mobile telephones and pagers in Guangdong accounts for more than one-half and one-third respectively of the national total.

Corporate Executive Looks at Telephone Industry

92FE0811A Beijing ZHONGGUO DIANZI BAO in Chinese 20 Jul 92 pp 1-2

[Article by Xie Xiaolan [6043 2556 1344], chairman of the board, Beijing International Switching Systems Corporation: "Support the Telephone Industry To Satisfy Communications Needs"]

[Text] Since the advent of reform and opening to the outside world, China has added to its existing telephone industry with the building and development of a number

of high technology telephone industry factories and associated electronics parts industries. China has established joint-venture plants with Belgium, Germany and Japan for the production of high-capacity SPC [stored program controlled] digital telephone switching equipment. In addition, it has two production lines that were researched and developed in China. These plants form the foundation for China's telephone industry. Manpower, financial, and materials resources must be concentrated, leadership must be focused, and overall planning must be done to provide careful support for them.

Speed of Development of China's Telephone Communications Since Reform and Opening to the Outside World, and a Forecast for the Future

China's telephone communications have developed by leaps and bounds in recent years. In the wake of Comrade [Deng] Xiaoping's remarks during his travels in south China, in particular, the posts and telecommunications sector has made further readjustments and improvements to reach the development goals set forth in the Eighth and Ninth five-year plans. Calculated in terms of the total number of main line telephones nationwide (including the total number of urban telephone, rural telephone, and PBX mainline number users), the total numbers of main-line telephone instruments in use in 1985 and 1990, as well as those planned for 1995 and 2000, are (respectively) 1.5 times, 3.1 times, 7.4 times, and 15.5 times the number in use in 1980, or eight times the number in the original plan (meaning there will be eight times as many in 2000 as in 1980). This is nearly a doubling every five years. At the same time, the total capacity of the nation's telephone switching equipment will be 1.5, 3.0, 7.2, and 14.4 times the 1980 capacity. Since the 1950's, the number of telephones in the world has generally doubled once every decade, but in China, the number tripled between 1970 and 1980, and increased 400 percent between 1980 and 1990. Clearly, China's telephone industry has developed at very high speed.

Inasmuch as the foundation for China's telephone communications is still very weak, despite the increased speed of development, the absolute number of telephones during each period of development remained relatively low. One important indicator in judging a country's communications is the rate of telephone spread, meaning the number of main line telephones per 100 people in the country's whole population. In 1980, this figure was 0.43 for China, and in 1985 it was 0.65; in 1990 it will be 1.14, and in 1995 and 2000, it will be 2.55 and 5.02 respectively. In 1990, there were 520 million main line customer telephones in the world, and the telephone spread rate averaged 9.85. This is to say that by 2000, China's telephone spread rate will still lag far behind today's world average. We must confront this problem head-on in order to meet communications needs during the great communications development age. The Eighth Five-Year Plan and the Ninth Five-Year Plan periods are crucial to the laying of a foundation for a take-off in the development of China's communications during the 21st century. We must pay close attention and devote constant attention during this period, not permitting the slightest mistake so that the development of China's communications will enter a new era of a completely benign cycle by the end of the present century.

Telephone Exchange Switching Equipment Needs for the Development of Telephone Communications During the Eighth and Ninth Five-Year Plans

Only by extrapolating the amount of output China requires on the basis of the foregoing situation will it be possible to meet and satisfy the steadily developing requirements of the country's telephone communications market during the Eighth and Ninth Five-Year Plans.

Total telephone exchange capacity (including total capacity of urban telephones, rural telephones, and PBX equipment) was 20 million lines in 1990. It 1995 and 2000, it will be a projected 48 million and 96 million lines. Clearly, capacity will have to be increased by 28 million lines during the Eighth Five-Year Plan, or an average annual 5.6 million lines. During the Eighth Five-Year Plan, capacity will have to be increased by 48 million lines or an average 9.6 million lines per year. This includes a telephone exchange switching capacity (i.e., the equipment capacity for urban telephones and rural telephones added together) of 12.5 million lines in 1990, and a projected 34 million and 70 million lines in 1995 and 2000 respectively. Therefore, during the Eighth Five-Year Plan, capacity will have to be increased by 21.5 million lines, or an average 4.3 million lines per year. During the Ninth Five-Year Plan, capacity will have to be increased by 36 million lines, or an average 7.2 million lines per year.

Estimate of Supply and Demand for Telephone Exchange Public Telephone Network Switching Equipment in China During the Eighth and Ninth Five-Year Plans

At the present time, China has three joint-venture corporations producing the high-capacity SPC digital telephone switching equipment that telephone exchanges need. Shanghai Bell Corporation (SBTEMC) produces the S1240; Beijing International Switching Systems Corporation (BISC) produces the EWSD, and Tianjin-NEC (TJNEC) produces the NEAX61. In addition, the first and tenth research institutes of the Ministry of Posts and Telecommunications (MPT) Scientific Research Academy have jointly researched and developed a domestically made production line, and the Zhengzhou Information Engineering Academy has cooperated with the MPT Industrial Corporation on the research and development of another domestically made production line. During the Eighth Five-Year Plan, the total output of these three joint-venture corporations is expected to reach 15.5 million lines. This includes an output of 10 million lines from Shanghai Bell between 1991 and 1995; an output of 3 million lines from Beijing International between 1992 and 1995, and an output of 2.5 million lines from Tianjin-NEC between 1993 and 1995. The requirement is for 21.5 million lines, the 6 million line shortfall to be made up by other domestic factories and through foreign credits. Thus, one might say that supply and demand are largely in balance during the Eighth Five-Year Plan.

During the Ninth Five-Year Plan, the gross output of these three joint public-private corporations for the period 1996 through 2000 is expected to reach 40 million lines, or an average 8 million lines each year. This includes 18 million lines by Shanghai Bell, or 3.6 million lines each year; 11 million lines from Beijing International, or 2.2 million lines each year; and 11 million lines from Tianjin-NEC, or

2.2 million lines each year. The requirement is for 36 million lines, meaning a surplus output of 4 million lines. Thus, one might say that China's production plans are entirely capable of satisfying the country's needs for switching equipment used in telephone exchanges for the building of its public telephone network during the Ninth Five-Year Plan. It also has a substantial surplus that may be used to supply the country's specialized telephone networks, as well as the needs of some foreign customers.

Concentration of Energies To Support the Country's Existing Telephone Industry so as To Prevent a Second Round of "International Brands"

At the present time, eight manufacturers in seven countries make the high-capacity SPC digital telephone switching equipment used in China's public telephone network. This might be called an international brand system that includes virtually every model in the world. The equipment consists of FETEX 150's from Japan's Fujitsu Corporation, NEAX 61's from NEC, S1240's from Belgium Bell Telephone Equipment Corporation, EWSD's from Siemens Corporation in Germany, AXE10's from Sweden's L.M. Ericsson, NO.5ESS's from American Telephone and Telegraph, E10B's from France's Alcatel Corporation, and DMS's from Canada's Northern Telecom. It also includes the S1240's, EWSD's and NEAX61's that are produced in the three joint-venture corporations in China. In a general sense, these models of telephone switching equipment have become international favorites. They have played a fine role and made a major contribution in the building of China's telephone communications. Nevertheless, too many models of equipment are bound to have unfavorable consequences for a country's communications network in terms of manpower, financial resources, and construction speed, as well as in management. Thus, the countries of the world, particularly developed countries, usually select one model of equipment or two or three models at most. China has had some profound lessons of experience in this regard. During the mid-1980's, quite a few experts made a case for "guarding against international brands." At that time, however, a mistaken—or at least an inaccurate—idea developed. It was generally believed that the demand for equipment was greater than the supply. This gave rise to the false notion that only by importing production lines for another two or three different models of equipment could demand be satisfied.

In this connection, I would like to present some data for consideration in comparing two different plans for attaining the goal of increasing output to 1 million lines. Plan A provides for the construction of a joint-venture factory to produce 1 million line of new model equipment. Plan B calls for expansion of production to 2 million lines per year of a joint-venture plant that is currently producing 1 million lines per year. (See table below.) Comparison of the data shows clearly that the building of a joint-venture plant for new-model equipment, versus expansion of the existing plant (not necessarily at the existing plant site), not only increases by one the number of models of Chinese manufactured equipment, but also wastes an extremely

large amount of manpower, financial and material resources, as well as time. What reason do we have for

importing production lines for more equipment models? Are the current five different equipment models too few?

Plan	Investment	Personnel	Construction Time	Technology Transfer Expenses	Technical Assistance Expenses	Investment in Chinese Manufacture	Training Force
A. Investment in New Joint-Venture Plants	100	100	100	100	100	100	100
B. Investment in Expansion of Joint-Venture Plants	50	70	30	10	10	10	20

Furthermore, given the country's circumstances, a high-capacity SPC digital telephone switching equipment production plant having an annual output of between 300,000 and 500,000 lines meets the break-even point. When output reaches 1 million lines per year, it begins to enter the optimum economic returns zone. This is to say that because of mass production, the cost per line begins to decline, and the sale price and the profit per line also begins to decline, but returns per unit of investment gradually rise. An example is the Shanghai Bell Corporation, which produced 200,000 lines annual during the initial period following plant construction. The sale price per line was very high, and the plant encountered very great marketing difficulties. Thanks to vigorous state support and the efforts of all personnel, output during 1992 surpassed 1 million lines. Now this corporation has the lowest product prices in the business domestically, and its economic returns are the highest.

The 1990's will be a period of great readjustment, major reorganization, and great changes in the world's economic pattern. In the telephone switching equipment production field, the international trend is toward competition on miniaturization and multiple functions. It is expected that, in general, only half of competing equipment models will survive into the 21st century. Internationally, "international brands" are gradually disappearing, and it seems that we must also not develop a second "international brands" in our telephone industry. It is to be hoped that, while traveling the road of reform and opening to the outside world, we will be able to concentrate the country's limited manpower, financial, and material resources, and make use of valuable time to centralize leadership, do overall planning, and make a cooperative division of labor to provide vigorous support to the nation's telephone industry.

Shanghai's Eighth 5-Year-Plan Targets Released

92P60408A Beijing DIANXIN JISHU in Chinese No 6, Jun 92 p 25

[Unattributed news brief: "Shanghai Stresses Fiber-Optic Communication Industry as Major Development Task"]

[Summary] The Shanghai municipal government has singled out the fiber-optic communications industry as a major development focus. In the Eighth Five-Year Plan, the municipal production target for optical fiber is 100,000 km, and that for fiber-optic cable is 3,000 km. Production of optical communications equipment will also be stepped up [see JPRS-CST-92-014, 24 Jul 92 p 43], and in the Caohejing High-Tech Development Zone several new joint ventures for production of optical fiber and fiber-optic

cable will be founded. In addition, the scale of production of digital fiber-optic terminals at Shanghai AT&T Communications Equipment Ltd. [see JPRS-CST-91-024, 23 Dec 91 p 26] will be increased.

Fiber-Optic-Cable Construction Progressing

92P60438B Beijing DIANXIN JISHU in Chinese No 8, Aug 92 p 47

[Text] First-phase construction of the Wuhan-Changsha segment of the Beijing-Wuhan-Guangzhou overhead fiber-optic cable was recently completed when the final poles were put in place on Rongan Mountain in Puqi County, Hubei Province. This first-phase construction included all work involving renovation, rerouting, and stiffening of the fiber-optic cable running between Wuhan and Changsha.

Three Fiber-Optic Cables To Be Built in Guangzhou

92P60408B Beijing DIANXIN JISHU in Chinese No 6, Jun 92 p 40

[Summary] MPT has approved funds for construction of three overhead fiber-optic cables originating in Guangzhou: one leading to Beijing, one to Haikou, and one to Nanning. These three fiber-optic lines, totaling 4500 km in length, will be laid by the end of this year and put into operation in 1993. The new lines will add 9,600 circuits to the interprovincial level-one trunkline; of these circuits, 1,920 will be for the Guangzhou-Hunan-Hubei-Henan-Hebei-Beijing route, and 3,840 will be for the Guangzhou-Haikou route.

Single-Mode 565 Mbps Digital Optical Transmitter Developed

92P60424A Chengdu DIANZI KEJI DAXUE XUEBAO in Chinese Vol 21 No 3, Jun 92 p 292

[Article by UEST researchers Qiu Qi [6726 3825], Mei Kejun [2734 0344 0193], and Chen Sizhen [7115 1835 3791]: "Single-Mode 565 Mb/s High-Speed Digital Optical Transmitter"]

[Summary] The authors have developed a single-mode 565 Mbps [i.e., DS5] digital optical transmitter, a key component in DS5 fiber-optic communications systems. This modularized product has the following main performance indicators: transmission rate is 565 Mbps with NRZ [non-return-to-zero] code (or 622 Mbps, NRZ code), interface voltage level is at the ECL [emitter-coupled logic] standard level, system employs single-mode fiber and 1.3- μ m-wavelength single-mode semiconductor lasers, transmitting optical power (average power out of the fiber)

exceeds - 3 dBm [-3 decibels referenced to a milliwatt] and has a maximum value of - 0.79 dBm, extinction ratio is less than 0.05, and output optical power stability is better than +/- 5 percent. These performance parameters match those of foreign-made products of comparable kind as of the mid-1980's.

**Changde Digital SPC PBX Production Line
Passes Check**

*92P60436A Beijing ZHONGGUO DIANZI BAO
in Chinese 10 Aug 92 p 1*

[Article by Yang Yusong [2799 3768 2646]: "Changde Stored-Program-Controlled Switch Technological Transformation Project Completed"]

[Text] The Changde [1603 1795] Wired Communications Equipment Manufacturing Company's digital stored-program-controlled private branch exchange

(SPC PBX) Seventh Five-Year Plan technology transformation project—the first to involve a Chinese firm's contract to import advanced foreign technology of this type—passed ministry-level completed project acceptance check on 31 July. This State Seventh Five-Year Plan electromechanical technology transformation key project was based on the 1988 importation of an advanced production line from the Netherlands's Philips Co. at a gross investment of 29.83 million yuan. The product is [Philips'] SOPHO-S series of digital PBX's, with a wide capacity range, strong composite network ability, complete digital functions, and ability to be directly hooked up to an ISDN [integrated services digital network]. All technical indicators conform to CCITT recommendations and to national standards, including the State Outstanding-Grade Switch Standard. Composite annual production capacity is 117,000 lines.

CAMBODIA**'High-Level' Delegation Examines Malaysian Planning**

*BK0810063392 Phnom Penh Samleng Pracheachon
Kampuchea Radio Network in Cambodian
1300 GMT 7 Oct 92*

[Text] The high-level delegation led by His Excellency [H.E.] Chairman Chea Sim—chairman of the Cambodian People's Party, National Assembly, and National Council of the Kampuchean United Front for National Construction and Defense—which is currently visiting Malaysia, paid a visit to the Economic Planning Department at the Malaysian Prime Minister's Office on the morning of 6 October. Our delegation was cordially welcomed by (Anwar Mar), deputy director of the department, and several other officials there.

Our delegation listened to a report on preparations since (?1947) of Malaysia's state planning which has made the country achieve remarkable development. Apparently, the Malaysian people's living conditions have been improved: The yearly average income which was \$1,109 in 1970 has increased up to \$(?7,180) in 1990, and the rate of poverty which was (?99.3) percent then has dropped to only 19.1 percent now. Our delegation exchanged views on the preparation of state planning in order to gain from Malaysia's experience.

On the afternoon of the same day, our delegation headed by H.E. Kong Sam-ol, vice chairman of the Council of Ministers, held talks with Malaysia's Cellular Network Company or Celcom, which has planned to make investment to facilitate the communications network in Cambodia.

Our delegation also held a meeting on the issue of foreign investment in Cambodia with important Malaysian businessmen and a number of Malaysian reporters.

At 1600 on the same day at the Malaysian Chamber of Commerce, a program was organized for our delegation to present a report on foreign investment works in Cambodia

to Malaysia's prominent businessmen. Our delegation talked about some investment formalities and the process of investment in the country and answered questions on the investment matter posed by Malaysian reporters.

PHILIPPINES**New Radio Program on Government Begins on 6 Oct**

*HK0510043192 Quezon City MALAYA in English
5 Oct 92 p 2*

[Text] A new radio program designed to introduce government personalities and their programs to the people will be simulcast at 10:30 to 11:30 p.m. starting Oct. 6 over DZXL and 40 other AM-FM radio stations.

President Ramos will be the inaugural guest of the program entitled "KKK-Ang Inyong Lingkod [Partnership—At Your Service]," to be aired weekly. The President will be interviewed on his vision for the Philippines, his program of government, its workability and benefits to the people by two veteran journalists—Gil A. Santos, former Associated Press and AP-Dow Jones Manila Bureau manager, and Danny Hernandez, People's Journal columnists, both program hosts.

The Pacific Age Communications & Information Systems, Inc. (PACIS) said Jose L. Pavia, another veteran media practitioner and newswire service expert, will assist the hosts as executive producer.

PACIS president Vic R. Macasaet said the one-hour weekly program will also be telecast via satellite on Channel 9 and all its stations to assure the widest reach and exposure of the special inaugural radio-TV presentation which falls just two days before the Ramos presidency marks its first 100 days in office.

Macasaet said that after the inaugural broadcast on Tuesday, Oct. 6, the weekly program will be aired every Sunday from 11:00 a.m. to 12:00 noon. Macasaet said the program's carrying stations are: DZXL-Manila, DZRA-Laoag, DZNS-Vigan, DWAA-La Union.

HUNGARY

MATAV's Sat-Net Satellite Service Described

92WS0653A Budapest SZAMITASTECHNIKA
in Hungarian 2 Jun 92 p 5

[Article by Huba Bruckner: "Boundless Possibilities"]

[Text] Sat-Net Satellite Service Ltd., owned by the Hungarian Telecommunications Enterprise [MATAV] and PLEASE Ltd., have the primary goal of satisfying data transmission needs. With the aid of satellite communications Sat-Net undertakes to perform data transmission independent of the status of an earth network. It provides a link between the new communications system and existing public networks. Thanks to its close link with MATAV it provides its services to its customers on the basis of the principle "everything from one place." Naturally this also applies to setting up international connections.

The SAT-STAR service of MATAV offers a most modern, high reliability data communication network primarily to those who want to realize efficient bidirectional data transmission between their scattered sites and their central computers. The availability of SAT-STAR exceeds 99 percent.

Transmission takes place via satellite between small earth stations (VSAT) at the user site and the central station of the system (HUB). The SAT-STAR VSAT microterminal put into operation at the user site uses the most developed signal processing technology available today. It meets the strictest reliability prescriptions and represents an outstanding technical level. The SAT-STAR VSAT microterminal can be installed quickly thanks to the inside unit and the small diameter (1.2 to 1.8 meter) antenna. The VSAT system operates completely automatically, without supervision, while making possible remote diagnosis, remote monitoring and remote resetting of the parameters of the terminals. The network can be expanded with additional VSAT terminals in a short time, without interrupting traffic, and if the user changes sites the terminals can be moved easily. The connections meet the CCITT standards (V.24-V.35).

Typical applications possibilities for the service are: bidirectional, conversational point-multipoint data networks; dedicated point-point data connections with adjustable transmission speeds; unidirectional data broadcasting networks; unidirectional video broadcasting networks; unidirectional audio broadcasting networks; bidirectional speech transmission networks with different topologies; and bidirectional video conference networks.

Sat-Net Ltd. offers the possibility of linking into the public packet switching data network.

Ending of Frequency Moratorium Considered

92CH0777B Budapest HETI VILAGGZDASAG
in Hungarian 11 Jul 92 p 10

[Unattributed article: "Frequency Studies"]

[Text] In the last few days, several leading representatives from the governing parties indicated that in reply to the "no" issued by Arpad Goncz, president of Hungary, the

government might lift the frequency moratorium which was imposed almost three years ago and might decide on its own authority to whom it will grant frequencies among the many applicants.

Behind the frequency moratorium there is actually a dual ban: While it is in effect, no permits can be granted either to found studios for the preparation of programs to be broadcast over radio waves, or for the actual broadcasts themselves. Should the ban be lifted, the applications to establish studios would have to be evaluated by a press authority on the basis of the modified press law, and the assignment of frequencies by a technical authority could take place on the basis of the postal law. However, this is only theory, because in reality, the press law which was passed in 1986 and modified in January 1990, does not mention national and regional radios and televisions at all and has only a few phrases on local electronic media.

As far as the distribution of frequencies is concerned, Kalman Toth, director of the department of frequency management at KHVM (the Ministry of Transportation, Telecommunications, and Water Management) told us that, as prescribed by the postal law, his agency "gives" and "plans" frequencies solely on the basis of the location and technological parameters of the transmitting equipment to be operated. According to Kalman Toth, his office does not intend to assume the burden of ranking applications on the basis of political or market considerations, if there is more demand than the technological possibilities would allow.

According to the experts at the KHVM, it is difficult to say exactly how many free frequencies there are in the country. If we start from the plan described in the draft of the media law, according to which the Hungarian Radio and the Hungarian Television are required to broadcast three and two national public programs respectively, then over and above this there exists the technological possibility to broadcast another three national radio programs and one national television program. However, the number of local and regional broadcasts can be considerably greater than that. For instance, the so-called AM Mikro system is able to broadcast to an area approximately 40 km in diameter and can be expanded to 20 channels for each area. And then we have not even mentioned cable and satellites. Of course, there are plenty of applicants, too. According to data at the KHVM, there are over 250 applications for radio and television frequencies.

Based on statements given in the past few days, the question might be asked whether anyone has the right to withdraw permits to operate studios and to broadcast from the present facilities. In the case of studio permits, according to Gabor Parrag, expert at the KHVM, the answer is a clear no. The seven regional studios of the Hungarian Radio and the three regional studios of the Hungarian Television are the property of the parent institutions, and each one has the right to interrupt the national program and broadcast regional programs on its channel.

In the case of national radio programs, the situation is different. Namely, the program of Kossuth Radio is broadcast on three wavelengths at the moment: FM, AM, and short wave, and Petofi Radio is also "duplicated" on AM and FM. According to Gabor Parrag, at

the moment there is no legal regulation forbidding the institution supervising the Hungarian Radio to remove these "surplus" frequencies.

**Applications for Radio and Television Frequencies
in July 1992**
(May 1990 data in parentheses)

	Local and regional	National	Total
Radio	147	17(5)	164
Television	87	14(9)	101
Total	234(88)	31(14)	265(102)

POLAND

Development of Private TV Stations Discussed

92EP0615A Warsaw PRZEGLAD TYGODNIOWY
in Polish No 32, 9 Aug 92 pp 4-5

[Article by Grazyna Musialek: "Commerce on the Air"]

[Text] The first private television station in the capital is to begin operations shortly. There is much talk in the mass media about New Television Warsaw [NTW], which is directed by Mirosław Chojecki. His fellow journalists write that NTW will initiate a "new era," that it will break the state monopoly, etc. It is as though his colleagues have forgotten that this monopoly was already broken two and a half years ago in Wrocław.

Echo, or, How Does One Win a Woman?

Wrocław's Echo station started in February 1990 in as legal a manner as possible, on the basis of an agreement concluded with the Radio Committee, which at the time was directed by Andrzej Drawicz.

"We got consent for our operations because no one believed that they could succeed," says Leszek Turowski, Echo's programming director.

They started with two VHS cameras, a transmitter built by Marek Młynarczyk, a little equipment, and enthusiasm. Leszek Turowski, when asked about the financial resources he had at the time, admits that doing television is "one of the most expensive amusements invented by man." How then was it built without a lot of capital on hand?

Turowski says that with television, as with a woman, men are of two sorts. One sort, in order to win his chosen one, buys a house, furnishes it, and then asks officially for her hand. The other sort invites her to his place on the very first day.

"We are the sort that has the courage to pick the most beautiful girl in the room and go with her immediately into the bushes."

Consequently, at the beginning they had just two amateur cameras, but they were also aware that what count are ideas.

"The most important thing was what we were doing in front of the cameras."

They say that from the beginning they were "based on the stupidity of the Polish media." This means more or less that the weaknesses of public television were to be the strength of Echo. And also its difference. If on channels I and II "stiff guys in stiff ties" reigned, on Echo "young people without a care" did. Let us add, young people with ideas. Before they had a studio, they put armchairs on the roof of a skyscraper and against this scenery made a program with Janusz Korwin-Mikke. They managed to put Leszek Moczulski at a table with the first secretary of the Soviet embassy, and they invited Palestinians to come for a meeting with Mosad. The only problem was Mosad did not come.

The principle of Echo—and, let us note, a deft one—is also "to be with people, against the administration." They solve a multitude of intervention issues. They say that they are under no pressure either from politicians or officials or the bishopric, which was not pleased by "their relationship to democracy." The question of democracy was apparently related to the fact that they show nudists.

"We are dependent only upon money," Turowski states realistically. "This company must make a profit, and we must make people want to watch us."

They estimate that 200,000 to 300,000 viewers watch them consistently, mainly in the area of the old Wrocław voivodship. The company is developing. Repeated attempts to close Echo and the withdrawal of consent to its continued operation only brought it more publicity. In June 1990 when they situated their transmitter higher than permitted in their license, they were supposed to be shut down—for the first time—for that reason. Eight Western television organizations came to film the event, and Italian television even sent a mobile transmitter.

Today, Echo has "decent, professional equipment," its own studio, and is in a position to support itself through advertising.

Brother Pirates

For a year and a half, Italian capital has had 33 percent of the shares in the Wrocław company. The Societa Televisiva Italiana from Cagliari, Sardinia, also has shares in the Morze station in Szczecin, the Lublin television station, and the ES station in Poznan. The Italian company is providing the Polish contractors with Umatic SP equipment, which is of professional quality, though not of the newest generation.

All three of these stations are operating without a license, that is, they are "pirate" stations. The problem consists in the fact that all of them submitted the appropriate applications at the proper time, but up until the moment the statute on radio and television was passed, there was no institution to issue licenses for operations or to allot frequencies. The brother pirates consequently feel justified, and accordingly they maintain that neither they nor, least of all, society can wait any longer.

Szczecin, Lublin, and Poznan are learning from the mistakes and the successes of Wrocław. There are connections between these stations both in terms of personnel (Marek Młynarczyk, the general director of Echo, holds 25 percent

of the shares in Lublin television, and Ireneusz Orzechowski, vice president of the Wroclaw company, is a shareholder in Morze) and in terms of programming.

All these stations broadcast 24 hours a day. They retransmit a great deal, mainly from Super Channel positions. They do their own programs about one-and-a-half to four hours a day.

It looks as though the private parties are aiming for youth. The average age of those working at Echo is about 24, and for the majority of them this is their first place of employment. Moreover, we use the word "employment" here imprecisely, because there are fewer than 20 people in permanent positions at Echo. The rest are coworkers who get money only for a "product that goes on the antenna."

Echo's programming director admits that under him "19th-century, brutal capitalism" prevails.

"He who contributes the most ingenious product wins, but he cannot count on 'big bucks.'"

Echo pays considerably less than Regional TV Wroclaw.

"I am absolutely frugal but I can spend only what we earn," says Turowski.

Because of this, in his opinion, Echo's reporters are more mobile than those from Regional. They run after big stories and "for bread" as well.

At TV Lublin, which has been in operation since April of this year, everyone works without pay. That means that no one gets a salary, because economic activity, in other words, the procurement of advertising contracts began only in July. And so far things are going "slow" for them.

Lublin's director general, Cezary Pazik, however, hopes that the station will soon be able to begin to pay its people, who are mainly students. The director takes comfort in the assertion that commercial television stations around the world begin to make a profit only after five to 10 years of operations. Without paying compensation, the Lublin station needs about 40 million zlotys [Z] per month "to survive." Z150 to Z180 million would be sufficient to "survive," pay its people, and make petty operating purchases. The director hopes that getting advertisements at this financial level is realistic. As for its own programming, so far everyone at Lublin is diligently gaining experience. And besides, due to limited financial possibilities, for now extravagances are out of the question.

At the beginning [passage illegible] the Poznan station ES [passage illegible] at the latest, barely in June. The general director, Jan Babczyszyn so far enjoys most the fact that his people "are learning so quickly." The small fry are fresh because when they were brought on board, care was taken that there would be "no contamination from state television." Babczyszyn hopes that in a few months the station will begin to break even, like Morze in Szczecin, which has been in operation since October of last year and is already making its own way.

These people from Szczecin say that the head of their advertising department, a young man who never "handled these matters" before, is a genius. So far it looks as though enthusiasts and amateurs are making private television in Poland.

A War of Nerves

Apparently, local commercial stations are supposed to start soon in Lodz and Opole. In Warsaw, Miroslaw Chojecki is getting NTW started. We wrote of his plans in PRZEGLAD TYGODNIOWY No. 30. Moreover, Chojecki is waging an individual "war of nerves" with potential competitors. The capital is a "tasty tidbit" in the literal meaning of this word. Whoever first establishes himself on the air has a chance to attract viewers and potential sponsors, or, in the opposite case, to play the leading role in a showy bankruptcy.

Jacek Zelezik, head of Top Channel Private Television, admits that the rapidity of Chojecki's actions completely disrupted his plans. It looks as though Zelezik wanted to start his Top Channel in a few months. Now he says that he will begin "any moment."

The head of Private Television, a lover of the media and gold jewelry, which he wears in great quantities, lived in France for 10 years. Top Channel is being created with his own private funds and Western credit. The station is to broadcast 22 hours of programming a day, including retransmission of several Western channels, six very short news blocks, and a lot of music. According to plans, they are supposed to produce their own programs for children as well as shows for youth. For the time being, they are making a controversial program for public television, "Summons," which is about the work of the police.

"Top Channel" is supposed to be a regional station, and its owner wants to establish similar stations in the next 10 largest cities in Poland.

In the State Radiocommunications Agency [PAR], 161 applications have already been submitted for an allotment of a frequency for operating television stations. More than 20 of the applications are for Warsaw, 13 each are for Krakow, Katowice, and Gdansk, and 10 are for Poznan. Nine applicants asked for a license to create a private channel that would cover all of Poland. Among these applicants are the Polish Ecological Party and the Polish Green Party, the Vega Commercial Publishing House, the Rok Corporation, and Miroslaw Chojecki's Independent Polish Television. The Salesian Fathers are also among them.

The applications were submitted more than a year ago, and today life has put the plans of many of the companies to the test. Vega is bankrupt; Chojecki is beginning modestly for now with NTW and only if he meets with success here will he be able to count on greater credits from the West; the Rok Corporation is waiting but likewise it is not giving up its venture. The representative of the Salesian Fathers does not want to talk about the financial and programming realities of church television as long as "the matter is in progress."

In accordance with the bill on television and radio broadcasting, concessions for operating private stations will be granted by the National Council. The awarding of concessions is synonymous with the awarding of broadcast frequencies.

The reality in this field is such that congestion rules the airwaves. "There is room" for just one more national channel, five regional channels in the capital, and three or

four in each of the provincial capitals. Furthermore, the realities are such that, as Marian Kislo, the director of the PAR, says, had the law been ready a year ago, there would not be very much to distribute.

First a new division of the frequencies used must be established with the states neighboring Poland. These arrangements are long-term and "that is precisely what is pending."

The pirates state that there would be no end to the wait for all the arrangements to be made.

"We are left with the method of accomplished facts," they say. And they are switching on their transmitters.

"The best are not in a hurry," Jozef Wegrzyn of the Rok Corporation says to that.

Time will tell.

ROMANIA

Siemens Fiber-Optic Cable Links Capital Centers *92WS0734A Bucharest ROMANIA LIBERA in Romanian 15 Jul 92 p 2*

[Article by Adrian I. Ionescu: "Siemens: Fiber Optics in Romania for the First Time"]

[Text] The first section of fiber optics cable in Romania was inaugurated on Friday, 10 June. It links the National Center for Telecommunications [CNT] No. 2 (Drumul Taberei) with CNT No. 1 (Victoria); with its ancillary equipment (capable of 140 Mbps [Megabits Per Second]), it allows 1920 conversations to be conducted simultaneously.

The equipment and the cable were delivered by Siemens and installed by Rom-Telecom, of course, with "assistance from the German partner." This event would not have been possible if Siemens had not succeeded in lifting the COCOM [Coordinating Committee on Export Controls] embargo against the exportation of such high technology into Romania. The exportation limit now currently affects only transmission capabilities exceeding 560 Mbps.

As we commented not too long ago, at the Alcatel Meeting in Slanic-Moldova, the race to win the Romanian telecommunication market is perhaps the most dynamic in the country. And of course, no business sector can develop without modern telecommunications. That is probably why, when we asked Helmut Rompf, sales manager for European Sales in the Siemens Transmission Systems Division, whether the famous competitors Alcatel and Siemens had already adopted a different orientation for the Romanian market, his answer was rather evasive, even though the answer may be found in the fact that four Siemens-licensed installations (the first three in Constanta, Galati, and Cluj) will be delivered by the end of the year, with 11 more in the following year. At first sight, this would therefore mean that Siemens is responding to all of Alcatel's "challenges" (in sports language).

Its worldwide results, listed below, entitle Siemens to accept this challenge, and it is left to Rom-Telecom to correctly referee the contest. And on a smaller scale, this is apparently what is being attempted, if we read the

announcement of 10 June 1992, which states that Siemens has supplied two 34 Mbps (with only 480 telephone channels) transmission systems "which will be installed on an already existing fiber optic cable of Japanese production (NEC), to provide another link between Alcatel's E10B digital node, and Siemens' EWSD international node."

We will soon bring you further details about Siemens, when we will propose an economic investigation of Electromagnetica and of its joint companies, an investigation that is now being prepared.

Siemens Corporation

The number of employees in the multinational company is 401,800 with 243,000 in the German sector. Of these, 65,900 have technical educations. On 30 September 1991, Siemens had 19,200 students actually working or in training.

Value added: 36.8 billion DM, of which 86.4 percent were allocated to personnel costs, 5.9 percent to state payments, 2.8 percent to creditors, 1.9 percent to shareholder payments, with 3.04 remaining in the company.

Sales: 73.008 billion DM (+16 percent with respect to 1990). Net income was 1.792 billion DM, and research and development was 7.892 billion DM.

Sales distribution: Of the 73 billion DM, 30 percent were earned in Europe (outside the German Federal Republic), 11 percent in North America, 7 percent in Asia, 6 percent in other areas, and 46 percent in Germany.

Corporate structure: included 13 groups (in 1991), such as construction and various industrial systems, automation systems, power generation, medical systems, telecommunications systems, and transportation systems.

These figures correspond to the consolidated (unified) financial report of Siemens AG and of the companies in which it has control of direct or indirect voting rights.

YUGOSLAVIA

Macedonia as Telecommunications Corridor

*92BA1397Z Skopje NOVA MAKEDONIJA in Macedonian
31 Aug 92 p 3*

[Article by B. Janev: "East-West Telecommunications Corridor"]

[Text] *PTT-Makedonija [postal, telegraph, telephone-Makedonija] is working intensively to ensure new international communication lines.*

This summer, PTT-Makedonija is working vigorously on the international telecommunications connection with its neighbors Albania and Bulgaria, as well as with Italy and Turkey for linkage to Europe and the world. The signed protocols for collaboration with the eastern and western neighbors. Besides the requirement for communication, the economic interests and the earnings from transit communications provide a basic motive for implementing the new corridor.

Because of frequent blockades of PTT communications with Europe and the world, as well as with the republics of

the former Yugoslavia, when Macedonia at times is in nearly complete telecommunication isolation, this summer PTT-Makedonija is working intensively to provide new international communication links. The disintegration of the formerly united Yugoslav PTT system and the almost complete delimitation and blocking of the main telecommunications line to the north—which connected the Republic with Europe and beyond, through Serbia, Croatia, and Slovenia—forced PTT-Makedonija to seek a way out in the East-West direction, somewhat like the situation in the case of road and railroad communication, the difference being that the use of a minimum number of links in this new telecommunications corridor is more possible in the near future than in the first case. Precisely for this reason, the management and the experts from this enterprise recently confirmed more meetings with new colleagues from PTT departments in the neighboring countries, as well as with some from the broader region of the Balkans and from this part of southern Europe, so that Macedonia may be able to communicate with Europe and the world without interruption.

Because the European Community is ready to help with the development of PTT links in this region—in particular through EUROTETDEV (TET), the project in which more European countries are included—PTT-Makedonija has reinstituted intensive cooperation with our neighbors in the area of telecommunications as a priority in all of these activities. Thus, a protocol was recently signed with the Albanian Post Office, which provides not only for connection of the telecommunications systems of the two countries with permanent equipment and installations, but also for continuation of these lines to Italy on one side and to Serbia and Kosovo on the other. The Republic would be connected through Tirana and with Italy (western international telephone links would establish the Skopje-Ohrid-Korcha-Tirana-Rome line), which creates conditions for using PTT lines with more European countries. It is particularly interesting that this will facilitate communication with Croatia and Slovenia, with which connections are broken at the present time. As is envisioned with the protocol, this line has to be supported with the most modern digital equipment. Likewise, connection with border areas such as Ohrid, Podgradets, Debar, and Peshkopia, through manual and automatic links, has been agreed upon, and there will be lines between Tirana, Ohrid, and Podgradets, and between Skopje and Tirana, the principle cities of the two countries.

As they inform us at PTT-Makedonija, work specified by the protocol began recently, when crews from our post office spent time in Albania in order to confirm the specific technical details and decisions for implementing a radio link between the two countries, which otherwise would be made through Italy. On this basis, this plan would be implemented very quickly before the end of the year, but, of course, everything will depend on the possibilities for providing the appropriate equipment.

A crew of experts of PTT-Makedonija also had more meetings, conversations, and contacts with their colleagues from the PTT department of the eastern neighbor, Bulgaria, with which a protocol for collaboration was signed this past spring. At that time, it was agreed that direct postal service and telecommunications would be established between the

two countries. In the area of telecommunications, first of all, the direct connections that would be achieved with optical cable systems has up to now been a subject of mutual interest between experts of the two states, as is envisioned in another way with the EUROTETDEV (TET) project, the concept of which was internationally confirmed last year in the regional meeting in Ohrid. In essence, this project represents a broader regional telecommunications connection in the Balkans, and part of it is the utilization of a new direct digital telecommunications link in the Skopje-Kriva Palanka-Kyustendil and Sofia line.

Both of our closest neighbors and other countries in their vicinity that lie on the East-West telecommunications axis, including, first of all, Italy and Turkey, in the individual unexpected appearance of the representatives of the governments of these countries, as well as in the direct contacts between the PTT experts, many times up to now have emphasized that they not only are interested in the implementation of this plan for the new telecommunications corridor, but are also proposing quick short-term solutions. Of course, economic interest is the chief motive for all of this, which is also the case even with PTT-Makedonija, inasmuch as the geographical location of Macedonia in the Balkans as a unique communications crossroads provides hope that the use of the East-West telecommunications corridor will be a very profitable thing. This is because any transit telecommunications link that will pass through Macedonia will produce a good profit. Because of this fact, as well as because of the significance of the connection of the PTT systems in this region, PTT-Makedonija will participate in the meeting that will be held in September between the experts of the five countries—Albania, Macedonia, Italy, Bulgaria, and Turkey. The future scope of this plan, which will be a new Balkan and European telecommunications corridor, will have to be made specific at this meeting.

[Box, p 3]

Satellite Communication with Switzerland!

Last week, representatives of PTT-Makedonija met with their colleagues from the PTT department of Switzerland to discuss telephone and telegraph communications between the two countries, which have become difficult and often interrupted because of the war in Bosnia-Herzegovina. At the same time, they considered the possibility of solving the problem with the use of a satellite link (with a capacity of 60 simultaneous telephone calls) to connect the international telephone office in Skopje with an office of this kind in Switzerland. This would be the first direct satellite connection between the Republic and a country; Macedonia made use of the satellite station in Ivanjitsa only indirectly through PTT-Belgrade.

The Swiss PTT department would provide the equipment for the station, the line capacity of which is at the level of that which Macedonia had with Switzerland before the breaks in the transmission system with Bosnia-Herzegovina began, and compensation for use of the system would be calculated on the basis of the communication between the two countries. The time agreed upon for establishing this satellite link is set for the middle of September, but first we are awaiting definitive confirmation on the part of Switzerland.

REGIONAL AFFAIRS

ARABSAT To Purchase 2 Satellites From Hughes*NC1010144892 Cairo AL-AHRAM in Arabic
5 Oct 92 p 6*

[Muhammad al-Sa'dani report]

[Text] The Arab Satellite Communications Organization, ARABSAT, board of directors decided at its 63d session held recently in Damascus to choose the U.S. Hughes International Communications Company to build the first two of the second generation of ARABSAT satellites from among the Hughes series of HS-601 satellites at a total cost of \$258 million.

Engineer Muhammad 'Abd-al-Hafiz, deputy director of the Communications Projects Authority who represented Egypt in the ARABSAT meeting, said that the Arab organization will receive the first satellite 29 months from the date of the contract's implementation, and that the second satellite will be stored for use when needed.

He said that the third satellite from the first generation, which was launched recently from French Guyana, will continue to operate for 10 years and carry Arab telephone communications traffic and Arab and international television programs. He added: The life span of the first satellite of the second generation is 15 years. Each of the two satellites to be built will have 18 channels in the C-Band with a normal capacity and two channels on the same band with high capacity. They will also include 12 channels in the KU-Band with a low capacity that covers most Arab areas, thus allowing reception of television programs with small dishes ranging in diameter between 60 and 100 cm. Each satellite will also have two channels in the S-Band with a high-low capacity and a large footprint that includes a number of European, Africa, and Asian countries in addition to the Arab countries.

Voice of Kurdistan Revolution Reveals Station Location*NC0808180192 Voice of the Kurdistan Revolution Radio
in Arabic 1700 GMT 8 Aug 92*

[Text] [Kurdistan's] Culture and Information Minister [name indistinct] and Kurdistan Information Committee officials on 7 August visited the building in al-Sulaymaniyah, which houses the radio and television station of our party, the People's Democratic Party of Kurdistan.

The minister of culture and information was accorded a hospitable welcome by station employees. He talked with employees and correspondents about the state of the media and its role in the current situation.

The minister also discussed methods of unifying the media and developing media centers that serve the people of Kurdistan.

BANGLADESH

Manufacture of Dish Antenna Permitted*92WT0222X Dhaka THE BANGLADESH OBSERVER
in English 17 Jul 92 p 1*

[Text] Information Minister Barrister Nazmul Huda told Parliament on Thursday that the Government had given permission for the use of Dish Antenna and its production in the country, reports BSS.

Replying to a question from Mr. M.M. Nazrul Islam (AL-Bhola), the Minister said that permission to use the Dish Antenna had been given so that the people of Bangladesh could see the programmes of different television stations throughout the world.

Mr. Huda said industrial units to manufacture Dish Antenna could be set up under the industrial policy to bring the price of the Dish Antenna within the buying capacity of the people.

Replying to a question from Zainal Abedin Hazari (AL-Feni), the Information Minister said that the programmes of the five channels of Star TV (Hong Kong), one channel of CNN (Cable News Network) and the programmes of China, Malaysia, Indonesia and India could be seen by using 3-meter Dish Antenna.

Mr. Huda, in reply to a question from Abdur Rahim (AL-Dinajpur), said that the Government had a plan to formulate information policy.

The Minister further said a plan had been taken to telecast the CNN programme from 7 a.m. to 1 p.m. everyday except Friday from Bangladesh television.

Parliament Informed of Television Plans*[THE BANGLADESH OBSERVER 10 Jul]
92WT0221X Dhaka THE BANGLADESH OBSERVER
in English 10 Jul 92 pp 1, 10*

[Text] Information Minister Nazmul Huda on Thursday informed the Jatiya Sangsad that four new relay stations of Bangladesh Television (BTV) would be set up in Patuakhali, Thakurgaon, Kushtia and Brahmanbaria during the Fourth Five-Year Plan period, reports BSS.

The Information Minister said the relay stations would be set up at a cost of Taka 28.50 crore and the Executive Committee of the National Economic Council (ECNEC) in its meeting on December 1, 1991 had given approval to the project.

Mr. Huda was replying to a resolution moved by Md. Mashiur Rahman (BNP-Jhenaidah) for setting up a relay station at Jhenaidah situated at the centre of the districts of greater Jessore, Kushtia and Faridpur.

He said besides the BTV's main telecasting centre at Dhaka, there are 10 relay stations in different parts of the country which covered 80 per cent of the total populations and 70 per cent area of the country.

The Information Minister said some areas in the southern part of the country, the bordering region and some small pockets were still outside the telecasting zone. The people living in those areas watch Indian television, he said.

Mr. Huda said news about the events taking place in the country was not reaching them and at the same time they were also influenced by alien culture.

He said with the setting up of the four new relay stations 90 per cent of the total population and 85 per cent of the total area of the country would come under the telecasting zone.

Mr. Huda said Bangladesh television under the present democratic atmosphere had been acclaimed as one of the most popular mass media and it catered the news about the events taking place in the country objectively and in a non-partisan manner.

He said activities of the opposition parties and its leaders were duly covered by the BTV. In this connection, the Minister referred to the presence of opposition leaders in the "mukho-mukhi" programme regularly.

The Information Minister said the BTV's programmes reflected the development-oriented activities and politics of production undertaken by the present democratic government. The programmes were the true manifestations of image of an elected government which enjoyed popular support.

He said the past autocratic regime had used the popular mass media to build its image through propagating falsehood and lies.

Referring to the opposition criticism for not covering the incident which took place in and around Jatiya Press Club on June 21 last, Mr. Huda said the event was missed since the BTV had no independent reporting systems and it was dependent on news agencies and other sources for supply of news.

He said introduction of an independent reporting system for the news department of BTV was under active consideration.

The Minister pointed out that demand for setting up relay stations spoke of the popularity of BTV as a media.

Mr. Huda said Jhenaidah would be covered by the new relay station to be set up in Kushtia. He said proposal for setting up a relay station at Jhenaidah would only be considered if the signals of Kushtia relay station were not properly received there.

EGYPT

Minister Inaugurates Telephone Exchange

Details on Exchange

92WT0215A Cairo AL-JUMHURIYAH in Arabic
13 Jul 92 p 6

[Article by 'Ali Hashim: "Banha's Electronic Telephone Exchange To Provide 15,000 Lines"]

[Text] Engineer Sulayman Mutawalli, minister of transport and communication, will inaugurate Banha's new electronic telephone exchange this morning. The unit, which cost 26 million pounds, has a capacity of 15,000 lines.

The new exchange will improve telephone service in Banha, as well as with all of the other governorates and

with the outside world. It will also make it possible to provide telephone service to those who have been on the waiting list since the 1 January 1990.

Banha's existing portable exchange, with a capacity of 8,000 lines, will be moved to Kafr-al-Shaykh, where it should help improve service and help meet pent up demand.

Sulayman Mutawalli stated that general-service telephones will be installed on the North Coast Highway that connects Alexandria with al-Sallum through Marsa Matruh and [several] tourist villages. The new phones will serve travelers and summer tourists, giving them access to any location within Egypt.

The minister also announced an increase in the number of mobile telephone bureaus that serve the summer resorts of Ras-al-Barr, Batim, Alexandria, and Port Said. Citizens can use those bureaus to make various domestic and international calls.

It has also been decided to improve the Cairo-Alexandria Highway by removing its telephone poles and replacing them with underground telephone cable.

Development Praised

NC1609182292 Cairo Arab Republic of Egypt Radio
Network in Arabic 1400 GMT 15 Sep 92

[Text] Information Minister Safwat al-Sharif has said that Egyptian media are currently experiencing their brightest era of freedom and democracy, thanks to President Husni Mubarak. He noted that Egypt is currently living through an era of openness in which there is no mandate on its people. He said the Egyptian media respect the Egyptian citizen and believe that freedom is indivisible, adding that the media message is to promote a society in which the citizen can live in complete freedom.

In a speech he delivered during the inauguration of the new television transmission station of the Egyptian news company—CNI [expansion unknown; abbreviation read in English]—at Jabal al-Muqattam today, he said that competition is needed in the media. This competition will benefit the Egyptian viewer.

INDIA

Progress in INSAT-2A Operations Reported

Weather Pictures Sent

92WT0231A Bombay THE TIMES OF INDIA in English
5 Aug 92 p 12

[Text] The Times of India News Service, New Delhi, August 4—The indigenous multi-purpose satellite, INSAT-2A has started sending high-quality cloud cover pictures of the country and other payloads are also working well.

Consequently, India will terminate the lease of 12 transponders on ARABSAT and switch-over those operations to INSAT-2A on August 8. The satellite, launched by the Ariane rocket from Kourou islands in the French Guyana on July 10, was parked at its space home at nearly 36,000 km from the earth's surface last Friday.

Indian space research organisation sources said all the equipment aboard have been switched on and are working well. Yesterday ISRO scientists carried out some communication experiments. The satellite is likely to be declared operational on August 15.

India leased 12 transponders on ARABSAT at a cost \$1 million (Rs 3 crore) per transformer for every year in 1989, following the unexpected failure of INSAT-1C. The transponders were hired as an emergency measure for four years to back-up INSAT-1B till INSAT-1D was launched in 1990.

In fact, now with the advanced features on INSAT-2A, eight transponders would do the job of 12 on ARABSAT. ISRO sources said Arab countries are also happy to get back the transponders as they are facing shortage of capacity due to some operational difficulties in their other satellite.

The India meteorological department (IMD) here received the first cloud cover picture, similar to the one from INSAT-1D shown on Doordarshan news every night, last week.

An indigenously-made very high resolution radiometer (VHRR) takes measurements of the cloud cover. INSAT-1 series had imported VHRRs on board. Sophisticated computers at the master control facility, Hassan and at the IMD here converts these into high-quality pictures.

Last week, even before the satellite had reached its space home, scientists operated the VHRR and got good pictures. Earlier, the IMD used to get the pictures through the earth station at Sikandarbad in Bulandshahr district near Delhi.

Commercial Use Begins

92WT0231B Madras *THE HINDU* in English
14 Aug 92 p 4

[Text] Bangalore, Aug. 13—Commercial utilisation of the Insat-2A, India's first indigenous multi-purpose communications satellite, launched early last month, has begun with the networking of regional TV programmes.

The networking in Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu was hitherto being carried out with C-band transponders hired from the Arabsat, sources said.

Twelve C-band transponders were hired from the Arabsat after the U.S.-built Insat-1C failed. Besides, its predecessor, the Insat-1B, was nearing the end of its life. The C-band transponders were provided on the Arabsat-1C and its beams were tilted towards India.

Although the lease was to run on till next year, the Arabsat now required the 1C transponders back to take West Asia traffic as the Arabsat-1B was nearing the end of its life. Since the Arabsat-1C beams would be redirected towards West Asia it would not be possible for India to continue to use those transponders.

The functions of the Arabsat transponders will now be substituted with the Insat-2A's 12 C-band transponders and 6 Extended C-band transponders, which are working perfectly.

Minister Dedicates Mobile Satellite Station

92WT0214A Bombay *THE SUNDAY TIMES OF INDIA*
in English 12 Jul 92 p 7

[Unattributed article: "Mobile Satellite Station Operational"] txt

[Text] Pune, July 11—The Union minister of state for communications, Mr. Rajesh Pilot, today emphasised the need to strengthen the rural communication network in the country as a step to bridge the developmental gap between villages and urban areas.

While advancement in communication technology was imperative for India to keep pace with the global market, imbalanced sectoral development within the country could not go on for long, he said.

Mr. Pilot was speaking after dedicating to the nation the country's first satellite mobile communication land earth station, named "Vikram INMARSAT land earth station," at Arvi, about 100 km from Pune. In the absence of the Maharashtra chief minister, Mr. Sudhakarrao Naik, the state education minister, Mr. Anantrao Thopte, attended the function as the chief guest.

The Arvi INMARSAT land earth station will provide shore-to-ship and ship-to-shore services like telephone, telex and fax through the international maritime satellite organisation (INMARSAT) covering the Indian ocean region. Built at a cost of Rs 23 crores, the Arvi unit is expected to generate a revenue of about Rs 1 crore per day, a substantial part of it being in foreign exchange.

Noting that the telecommunications had become the life-line for all business and economic activities in the world, Mr. Pilot expressed happiness that the Arvi station had already captured around three per cent of the maritime traffic in the Indian ocean region.

The minister dwelt at length on how the poor in the rural areas of the country continued to be deprived of dependable communication facilities even while the Videsh Sanchar Nigam Limited (VSNL) had succeeded in providing reasonably good telecommunication facilities with other countries. He also called for providing employment opportunities to local villagers during the proposed expansion of the centre.

Later, speaking to the press, Mr. Pilot informed that the waiting period for new telephone connections would be brought down from the five years at present to about two years in the near future. His department was issuing about 100 new connections per day now and had set an objective to provide connections to all the 2.2 lakh gram panchayats in the country by March, 1993.

Responding to a report in this paper about the inordinate delay in the announcement of the short-list of companies bidding for a cellular mobile telephone service licence, the minister assured that there was no "wheeling and dealing" in the issue. An evaluation committee was currently assessing the technical feasibility of the various proposals and a decision would be made "soon," he added.

The telecom commission chairman, Mr. H. P. Wagle, said the commission had decided to accord top priority to provision of telecommunication facilities to upcoming industries in any part of the country.

The VSNL chairman and managing director, Mr. B. K. Syngal, pointed out that apart from the usual voice and message communications, the INMARSAT network had facilities for conveying distress and safety alerts and coordinating rescue activities which would help make seafaring much safer. The Arvi station had commenced its pre-operational phase on May 31 this year with 11 voice channels and the capacity would shortly be augmented to 22 channels, he added.

Dr. Ahmad F. Ghais, director (engineering and operations), INMARSAT, and Mr. Thopte also spoke on the occasion.

Fairness Urged in Satellite Frequency Allocation

92WT0213A Madras *THE HINDU in English*
14 Jul 92 p 8

[Editorial: "Launching of Insat 2A"]

[Text] The distinction about Insat 2A which was successfully put into orbit by the Ariane launch vehicle from Kourou in French Guyana on Saturday consists in its being the first one in the indigenously built second generation Insat 2 satellites for replacing those of the first. Apart from being more advanced, the Insat 2 series have one and a half times the capacity of the earlier satellites. The launching of the satellite is itself just the first step since the successful completion of the far more intricate operations involved in leaving the satellite at an allotted slot 36000 km. above the equator and the deployment of transponders in extended C band depend heavily upon the attainment of a state of zero error perfection in the performing components of Insat 2A. The longer reach of the satellite which will be followed by four more of the same series would make it possible to track distress signals from special aircraft and ship-borne beacons. The trials blazed in this area by India entitle the scientists of the Indian Space Research Organisation to a great deal of credit especially in the context of the obstructive attitudes particularly of the United States in respect of technology transfer.

The euphoric description by Prof. U. R. Rao, Chairman of ISRO, of the putting into orbit of Insat 2A from Kourou in French Guyana as a "textbook launch" is significant. The leaps which space technology has made could be seen in all their magnitude from the fact that the launching of satellites like Insat 2A had by now become a matter of routine for the European Space vehicle Ariane 44L. This is further highlighted by the fact that within three minutes of putting Insat 2A into orbit, another satellite Eutelsat II F 4 was taking off on the same Ariane flight. India's arrival in space would become fully established when its own Polar and Geosynchronous Satellite Launch Vehicles make it possible for it to do its own satellite launchings. It is now well on its way towards this goal with its successful placing into orbit of the Stretched Rohini Satellite Series C by the Augmented Space Launch Vehicle D 3 from Sriharikota in May last. The cooperation which the ISRO has been getting from the European Space Agency should, therefore, be highly cherished for enabling India to put its satellites into space before its own launch vehicles are ready.

The satellites which India has so far put into orbit have been keeping company with a little over 130 geostationary

satellites launched by different countries. Among the questions thrown up by this large number of satellites in orbit is that of the allocation of frequencies for them in the C and Ku bands according to the procedure involving the submission of plans by the launching countries to the International Telecommunications Union. The forthcoming generations of satellites will be operating higher frequencies and this will enable them to handle more information. The world could derive the maximum benefit from such galloping technology only if there is no cornering of the same by the richer countries. The Third World countries have had to contest the stand taken by the developed countries that preference for the allocation of slots and the frequencies should be given to them as they had both the technology and the resources. These questions which come up for discussion periodically at the World Administrative Radio Conference in Geneva are likely to generate more heat if the attitude of the developed countries remains what it has been in the past. India and the other Third World countries will have to stick together to ensure that they get a fair deal.

Sale of Satellite Technology Contemplated

92WT0240A Bombay *THE SUNDAY TIMES OF INDIA in English* 23 Aug 92 p 26

[Article by N. Suresh]

[Text] New Delhi, 22 August: The smooth working of the indigenous satellite, Insat-2A, has raised hopes of selling satellite fabrication technology in the international market.

Launched by the Ariane-4 rocket of the European space agency from the Kourou Islands on 10 July, the 1,906-kg satellite has become operational from 15 August, ahead of schedule.

In contrast, all the four satellites in the Insat-1 series, built by Ford aerospace communication corporation, encountered serious problems in orbit. Two of these—Insat-1A and Insat-1C—were abandoned after launch due to malfunctioning.

Scientists in the Indian space research organisation (ISRO) are elated by Insat-2A's performance. "The operation of a satellite has never been as smooth as Insat-2A," said a senior ISRO scientist involved in the operation.

Satellite operation is a complex. After Insat-2A was put in a transfer orbit (about 400 km from the earth's surface), a few minutes after the launch, scientists at the master control facility at Hassan, near Bangalore, took charge.

It was raised to the geosynchronous orbit (at nearly 36,000 km) in only two firings of the liquid apogee motor (instead of three), saving precious fuel which has increased the satellite's lifetime by two years—from seven to over nine years.

A study of the status of the key components on the satellite bring out Indian capabilities.

The solar sails opened smoothly and the indigenously built very high resolution radiometer (VHRR), which takes pictures of cloud cover, is working well. The Indian-built VHRR cost just Rs. 2 crores, compared to Rs. 10 crores for an imported one used on Insat-1D.

While developed countries have separate satellites for communication and meteorology, for cost effectiveness Indian scientists have integrated both facilities.

The VHRR, a complex instrument, has to be kept at extremely low temperatures to avoid overheating. So it is not usually mounted on a communication satellite.

However, Indian scientists have managed to extract the best from the VHRR. The calibrations to alter radiation falling on it to maintain the temperature within a small permissible range have worked out well, ISRO sources said. This technology is available to only a few countries.

While the VHRR is working well, the helium tanks (bought from a British company) which store the gas to maintain the satellite's temperature reportedly malfunctioned on Insat-2A, briefly giving scientists anxious moments. The problem, however, has been overcome.

Except for one momentum wheel and a few small thrusters, all the assemblies and sub-assemblies have been totally designed and built indigenously. However, some components such as basic semi-conductor devices, integrated circuits, solar cells, and some materials required for fabricating sub-assemblies have been imported.

Indian capability in this field is crucial in view of the two-year ban imposed on ISRO by the U.S. Capability exists within the country to also make the imported components, but only for a handful of crucial ones.

One such component not made here now is radiation-hardened integrated circuits. The electronic components have to withstand the high level of radiation in space. Semiconductor Complex Ltd., Chandigarh, was close to mastering this technology before the unit was gutted a few years ago.

Following the U.S. ban, India may have to turn to France for these components, but they are not as good as the American ones. Scientists plan to redesign the electronic circuits.

Papers Give Details on New Satellite System

Development Challenge

92WT0212A Bombay THE TIMES OF INDIA in English
9 Jul 92 p 4

[Article by Srinivas Laxman: "INSAT-2, a Challenge to ISRO"]

[Text] Bombay, July 8. The launch of the Indian National Satellite System-2 (INSAT-2) at Kourou in French Guyana on Friday will mark a significant breakthrough in satellite technology for the Indian Space Research Organisation (ISRO).

The development and fabrication of INSAT-2 posed a number of challenges to space scientists on account of its complexity. After, Aryabhata, Bhaskara, Rohini and the Indian Remote Sensing (IRS) satellites, INSAT-2 is the largest spacecraft fabricated by ISRO.

In an interview to this reporter last year, the director of the ISRO Satellite Centre, Dr. K. Kasturi Rangan, said that while INSAT-1 weighed 1.2 tonnes, the weight of INSAT-2 had increased to 1.9 tonnes.

During the visit to the satellite centre near Bangalore airport last year, the space scientists pointed to the satellite and explained to this reporter that it had three full and two half solar panels. In all the satellite had 16,000 solar cells imported from West Germany.

A significant aspect of INSAT-2 is that there are not so many satellites globally packing so much capability into a single spacecraft. Again, except in the INSAT series, there are no satellites in the world where the meteorological and communications payload have been placed side by side. According to a space scientists this could be an advantage as well as a disadvantage.

Placed in a geo-stationary orbit, 36,000 kilometres above the equator and having a seven-year life span, the INSAT-2 will complement the first series of INSAT satellites by providing telecommunications, TV coverage, radio networking, meteorological observations, disaster warning and satellite-aided search and rescue facilities.

Space scientists had stated that the communication payload of INSAT-2 was developed at the Space Applications Centre, Ahmedabad. A new addition to this payload is facility for satellite-aided search and rescue.

The communications payload comprises 18 fixed satellite service transponders, two broadcast satellite service transponders, a data collection system transponder and what is known as a "very high resolution radiometer data transmitter."

It was learnt that in 1989 ISRO had sought the transfer of technology for the "pressurant helium tanks" which form a part of the liquid propulsion system in satellites from the British Aerospace Systems and Equipments for the INSAT-2 satellites.

An American firm was at first selected, but it did not agree to ISRO's request for making a demonstrator tank conforming to the space agency's specifications. The British firm, thereafter agreed to ISRO's conditions and order for six tanks were placed which at that time cost \$500,000. The liquid propellant contributes to nearly half of the satellite's mass, it was stated.

The equipment for meteorological observations known as the "very high resolution radiometer," was fabricated locally costing Rs two crores. On the other hand the system that went into the INSAT-1 series was imported costing Rs 10 crores, it was learnt.

The resolution of the "very high resolution radiometer," has been improved in the INSAT-2 series as compared to the INSAT-1 satellites.

The complex satellite was flown on April 22 to Kourou. It took eight hours to put in several boxes and containers together weighing about 25 tonnes into a 1L-76 aircraft.

The satellite was mated with the European Space Agency's Airline-4 Launch vehicle on July 3.

A hot line has been established between the Kourou space complex and ISRO's Master Control Facility at Hassan in Karnataka.

The satellite's signals would be picked by the Master Control Facility 26 minutes after lift off. After that ISRO would be handling all the operations of INSAT-2.

INSAT-2 was expected to start operations from the beginning of August.

Successful Operation

92WT0212B Madras *THE HINDU* in English
11 Jul 92 p 1

[Article by N. Gopal Raj: "INSAT-2A Working Well"]

[Text] Kourou, July 10. The INSAT-2A spacecraft was working extremely satisfactorily and it was not ready in all respects for the first firing of the onboard liquid apogee motor scheduled for 7 a.m. on Saturday (July 11) Indian time, said Dr. K. Kasturirangan, Director of the ISRO Satellite Centre, at a press briefing here today.

At 7.25 p.m. local time—4.12 a.m. Friday in India—the engines of the four liquid boosters and the first stage of the giant Ariane 44L launch vehicle ignited. Rising from the billowing clouds of smoke which wreathed it, the launcher made its majestic way into the night sky. Some 19 minutes later, exactly on schedule, India's first indigenous multi-purpose satellite, INSAT-2A, was safely in orbit. Three minutes later, its fellow passenger on the same Ariane flight 51, Eutelsat-II F4, followed suit.

The Master Control Facility at Hassan (in Karnataka) received the first telemetry signals from the INSAT-2A 28 minutes later lift-off, Dr. Kasturirangan said. The spacecraft was in eclipse at the time.

The signals made it possible to monitor the spacecraft's health.

They indicated that the satellite's auto-sequencer had worked well. Immediately after separation from the third stage of the Ariane launcher, the auto-sequencer carries out a sequence of programmed operations without command from earth. As a result, the pyro-valves had been fired to open the propellant lines which had then been vented. The satellite's thrusters could then be fired to maintain its orientation.

With the south panel of the spacecraft, having the folded solar arrays, pointing to the sun, power generation and battery charging had started. In the INSAT-2A there is no deployment of the solar arrays in geostationary transfer orbit (GTO). The INSAT-1 method of a partial deployment in GTO has been done away with to make for a more fool-proof operation.

Instead, the INSAT-2A folded panels are large enough to provide the power needed by the satellite in GTO. The solar panel was producing 290 watts, against the 270 watts needed for GTO operations.

At 23.12 hours GMT (4.42 a.m. IST), the first decoding command was successfully sent to the satellite. Dr. Kasturirangan said its success was critical as it indicated that full communications had been established between ground and satellite. It was now possible to uplink further commands to the satellite. The telemetry, tracking, and command system was working well.

Although the perigee of the satellite was 1.8 km less than the nominal value and the apogee 100 km less than nominal, these were still well within the values allowed for.

The sun and earth acquisition had been completed. Drift of the onboard gyroscopes had been evaluated and necessary compensations uplinked. The satellite's attitude and orbit correction system, consisting of the onboard computers, the gyroscopes and the sun and earth sensors, had all been checked and found to be working well.

"We are now in a position to undertake the apogee motor firing operations," Dr. Kasturirangan said. Thermal conditions on the satellite too were well within limits.

UNI reports from New Delhi:

PM's praise: The Prime Minister, Mr. P. V. Narasimha Rao, today described the successful launch of the INSAT-2A and the Augmented Satellite Launch Vehicle (ASLV) as significant milestones in India's peaceful space programme.

Participation in Submarine Cable Project Planned

92WT0223X Bombay *THE TIMES OF INDIA* in English
1 Aug 92 p 13

[Text] Bombay, July 31—India will be linked with the rest of the world through a submarine cable when a multinational project is completed in about two years.

Now the country is linked to Dubai on the west and Penang (Malaysia) on the east through a submarine cable.

The proposed project would be an alternative mode to satellite communication and would have enough traffic to handle, an officer of the Videsh Sanchar Nigam Limited (VSNL) said.

The VSNL, as a participant in the project, will contribute Rupees 190 crores as India's contribution towards the capital cost of the submarine cable project. The amount will come from the VSNL's eighth plan outlay of Rupees 902 crores.

The submarine cable project called SEA-ME-WE-2 (South East Asia-Middle East-Western Europe) was conceived by the International Telecommunications Union about two years ago, but the government of India's interest in it was recent. The project is in the last stages of finalisation and is expected to be ready in two years from now.

The VSNL, which has just signed a memorandum of understanding (MOU) with the department of electronics for the second consecutive year giving it greater freedom in operation, is in the midst of an expansion phase.

Writer Reviews Improvement in Telephone Service

92WT0235 Bombay *THE TIMES OF INDIA* in English
17 Aug 92 p 8

[Article by Shirley Thomas Bajaj]

[Text] New Delhi, August 16—Ring... it's 4 a.m. Vivek picks up the phone and an electronic voice tells him that it's time for him to wake up for his flight.

Time was when Vivek used to lose sleep over the wake-up call, as the 173 operator was not always punctual, what with having to make a number of calls at the same time. The morning alarm service now offered by the Mahanagar Telephone Nigam Limited (MTNL) is an improvement on

those days, as the calling is not manual anymore. The system can make hundreds of calls at the same time, claim officials.

The MTNL has come a long way since the time when a dead phone was the order of the day. Now there is life in the lines, thanks to the advent of electronic exchanges. And the organisation also offers a number of other services, about which not many are aware.

MTNL officials blame the public for this. "We write about these services in detail in the directory, but no one seems to read those pages, they complain. Take, for example, the facility which enables the consumer to block all outgoing calls." Says Ms Renu Saluja, an executive in a private firm, "I did not even know such a facility existed. Ever since we got the digital phone, I worry everytime I go out about the domestic help using the phone." "That worry is over now," explain MTNL officials. "With a series of numbers you can lock your phone but still get all incoming calls. Just like the way you have a combination number to open your STD line."

MTNL likes to boast about this, the STD lock facility, one because it is totally indigenous, and two, because it has restored the people's faith in the system, the people who are aware of this facility, that is. Two out of three complaints on STD overbilling were out of basic distrust, say MTNL officials. "We have managed to avoid that, apart from ensuring that these lines are not misused by line-men," the officials say.

Another plus point of the STD lock is that if more than three attempts are made to open the STD line, the system gets jammed, ensuring that the hit and trial method is not used by anybody to break an STD code.

The lesser-known facilities the MTNL offers include call waiting, in which, if another call comes in when you are speaking on the phone, there are beeps to indicate it. You can then ask the person you are speaking to hold on while you press a button and talk to the other person, and then come back to the first caller. It is like having two phone lines, say MTNL officials. And it helps us at the MTNL also as it does away with a lot of artificial traffic which builds up if a person keeps on trying to get a number, explains the official.

Of course, there are those who do not see this as a blessing. Says businessman, Mr Baldeep Singh: "I discarded this facility as I found the beeps to be a nuisance during an important overseas call."

Another MTNL facility is call transfer facility, but this has not been too popular. In this, if you are not at your number, you can forward all your calls to another number. Till recently this facility was only available if both the numbers were the same exchange. But now the numbers can be in different exchanges and the facility can be used in conjunction with the much-publicised voice mail box service, to get you a service a la answering machines. The only hitch is that this facility is available only in digital exchanges.

And then there is the hotline facility, in which you can programme your phone to call up a certain number as soon as you pick up the phone. This is useful for businessmen

who have to ring up their factory or godowns a number of times a day. It can also be used as a normal phone, inform officials.

Papers Report Plans for Broadcast Services

Scheme for Private Producers

92WT0224A New Delhi PATRIOT in English 10 Jul 92 p 5

[Text] Doordarshan will not interfere in the contents of the programmes to be telecast during the time sold to private producers on the proposed linking of the metro channels, beyond the guideline, to be fixed by the Broadcasting Council of India.

Doordarshan sources told UNI that the council, to be set up shortly, will list some general criteria relating to national unity and integrity and adherence to secular ideals in programming. These guidelines will also ensure that nothing unpatriotic or adversely affecting India's relations with other countries would be allowed. There will be no programme-by-programme censorship, according to these sources.

There would also be general guidelines about the limitations on the kind of commercial advertising that can be done through the programmes to be produced by private producers.

The scheme for giving time slots to private producers on the second channels in the four metropolitan cities, cleared on July six, is the first step towards a second national entertainment channel, to curb the threat of cultural invasion from satellite channels.

Under the scheme, the four metro channels will be linked and about five hours per day will be allotted to private producers to put on their programmes.

The proposals also apply to allotting time slots on the fm channels of All India Radio in the metropolitan cities.

(Meanwhile, some State Governments have raised objections and the West Bengal Government has said this time slot should be given to the States.)

(Earlier, Information and Broadcasting Minister Ajit Kumar Panja had said a national second channel would cost about Rs 2,700 crore.)

The nine-member Broadcasting Council of India would oversee the entire work of allotment of channels to the private producers, the sources said.

The Broadcasting Council will invite applications from private producers for time slot allotment. It will also review the programmes to be telecast/broadcast and decide the quality parameters, apart from serving as the forum for redressal of grievances and complaints by the licences.

The modalities for the council are to be fixed within one month of the announcement by the Information and Broadcasting Ministry earlier this month.

Under the scheme, the council will have a chairman and eight other members to be appointed by the Government. There will be three ex-officio members—Secretary in the Information and Broadcasting Ministry or his nominees, Director-General of the All India Radio/Doordarshan, and the Engineer-in-Chief of Doordarshan/All India Radio.

The chairman will be a person of eminence and stature and the other members will be drawn from among media persons, authors, playwrights, performing artistes and film personalities of stature and eminence with knowledge and expertise of the electronic media.

The council will have a tenure of three years from the date of its formation or till a new council is appointed. The vacancies of chairmen and members will only be filled for the unexpired part of the tenure of the council.

(Meanwhile the sources clarified in reply to questions that this council was not related to the Prasar Bharati Act. It is stated that the I and B Ministry had suggested certain amendments in the act and sent these to the Law Ministry, which had since returned them with comments.)

The Government will have the power to issue directions and lay down policy guidelines in respect of the scheme from time to time and the council shall be amendable to such directions and guidelines.

The producer should have a proven track-record in producing television/radio programmes, feature films, video films, video magazines, and documentaries, or should have requisite qualifications in these fields from recognised institutions like the film and TV institutes in Pune and Madras, the Jamia Millia Islamia and the National School of Drama.

The council will also have the right to take action for suspension or revocation of the licences and will decide the allocation of suitable time slots.

It is learnt that the time slot to be set aside for leasing to private producers will include prime time (after 2000 hours in the evening, and Sunday mornings).

FM Technology, Data System

92WT0224B Bombay *THE TIMES OF INDIA* in English
24 Jul 92 p 6

[Article by Ratnottama Sengupta]

[Text] New Delhi, July 23—All India Radio (AIR) has finally woken up to the possibility of the FM technology that first came to India in 1977.

Sometime next month AIR will start using on an experimental basis, the FM for paging services. To begin with, the Steel Authority of India will avail of the services through the Rourkela transmission centre of AIR.

And from October, it will be equipped to apply the radio data system (RDS) for broadcasting data in the auxiliary channel of FM broadcasts, again, on an experimental basis. Later, if a policy decision is taken on the subject, the facility may be leased to private users too.

The FM broadcast technique offers the possibility of transmitting additional services through auxiliary sub-carrier channels for a variety of applications. Radiotext and paging are two such uses which, along with its privatisation, will enhance the productivity of the FM channel, explained Mr S.P. Bhatikar director-general of AIR.

On July 30 the operation of this system of transmitting text in the form of a data modulated on a sub-channel, will be demonstrated to an invited audience. The system was first put to test in India during the last general elections.

At present the FM channel, which gives a better performance even under severe disturbances, relays music programmes for only some hours in the evening. With privatisation, the channel is to carry original programmes. Whether music will continue to be the staple of these programmes, or whether drama, debates, discussions and other events will form the programmes, will be decided only when the proposed broadcasting council set up. But the stress is likely to be on music and information, said Mr Bhatikar.

As for the information, the details have to be worked out so that repetitions and overlaps with the existing programmes are avoided, said Mr Bhatikar. The information relayed on RDS will be for public utility, and without any disruption of the main transmission, he stressed.

In RDS, the data is fed into a computer, which encodes it into digital signals. These are transmitted through the FM channel along with the main transmission. At the receiving end the signals are interpreted by a decoder and displayed as information on a monitor. So it does not disturb the listener tuned in to the main transmission, explained Mr P.S. Sundaram, project director in the centre for digital techniques at AIR's research and development wing.

This system of transmitting text has been tested and successfully implemented by broadcasters in Europe and the U.S., bringing about sweeping changes in the information services. In India, AIR, too, proposes to use the system for transmitting stock prices, up-to-date rail and air travel timings as done in tele-text, weather bulletin and even news, in co-ordination with agencies like PTI, or even its own news-gathering network.

In addition, the service could be rented out to specific users such as banks, which could relay to its branches internal priority circulars, information about funds transfer, details of missing cheques, drafts and credit cards.

The RDS also has potential for application in adult education and for open university lessons. Further, Malaysia is considering the option of relaying question papers to the different examination centres, it is learnt.

To facilitate its application in the various parts of the country, the RD wing of AIR has provided the decoder with a multilingual ability. Through an indigenously developed technology called graphics and intelligence script technology the text can be displayed in 15 Indian languages. One decoder, costing about Rs 6,000, can be used for every monitor in the complex, explained Mr Sundaram.

To start with, the RDS information will be relayed by the Delhi, Bombay, Calcutta and Madras stations of AIR. Later it could be extended to the Ahmedabad, Chandigarh, Coimbatore, Hyderabad, Madurai and Pune stations too.

AIR, which has been expanding its FM network, expects to have 101 FM stations operational at district and regional levels by the end of this year. This number, AIR hopes, will go up during the eighth plan period (1993-97). A greater and better use of the FM channel has become imperative due to the congestion of the AM channel, stressed both Mr Bhatikar and Mr Sundaram.

The plan document, too, has stressed this, saying an important effort in the eighth plan would be to overcome the congestion of the national channel by starting a second channel which would permit diversification and variety.

The proposed plans for the FM channel have been criticised on the grounds that most radio sets in the country are not equipped to receive FM transmission. Countering the criticism, the project director said every company manufacturing radios in India is in a position to provide sets with FM receivers, and will do so when the market demands it. The additional equipment should cost around Rs 200 to 300, he estimated.

The future of the private programmes and the RDS is linked up at one point. If, like the private broadcasters in the West, our programmes on the private channel, meet every interest of the listener and ensure a viable audience, then the FM services could be kept going round the clock. And, in that case, radiotext will also be available for 22 hours, keeping aside two hours a day for maintenance, Mr Sundaram said.

Deputy Minister's Report

92WT0224C Madras *THE HINDU* in English
24 Jul 92 p 6

[Excerpts] New Delhi, July 23—Eight States and six Union Territories will be fully covered by All India Radio by the end of this financial year, says the Deputy Information and Broadcasting Minister, Dr. Girija Vyas.

In a written reply in the Rajya Sabha she said that with projects during the Eighth Plan, TV and Radio coverage would be available to 90 per cent and 97.5 per cent respectively of the country's population.

She said three States and six Union Territories were now being covered almost fully by Doordarshan.

Outlays for electronic media: The Minister said that Eighth Plan outlays for the various programmes of All India Radio and Doordarshan had been fixed at Rs. 1,134.95 crores and Rs. 2,300 crores respectively.

In reply to another question, she denied that the plans of Doordarshan and All India Radio had been upset by the entry of foreign TV networks in the country.

In another reply she said central monitoring service had already been set up in Delhi to monitor TV and radio news bulletins and news-related programmes from abroad. The electronic media tried to neutralise all anti-India propaganda through their programmes in different formats, including the external services of AIR. The central monitoring service also had two field units at Jammu and Calcutta.

[Passage omitted]

'Chanakya' earns good revenue: Doordarshan earned a revenue of Rs. 14.74 crores at the end of telecasting the 41st episode [of] the serial, "Chanakya," Dr. Vyas informed Mr. S.D. Singh in a written reply.

Doordarshan, she said, tried to telecast serials and other programmes on established tradition and heritage and socio-cultural themes with universal values. This is a continuing process, she said.—UNI, PTI

South Asian Television Channel Planned

92WT0241A New Delhi *INDIAN EXPRESS*
in English 9 Aug 92 p 2

[Text] New Delhi—Asia Today Limited (ATL) and STAR TV announced on Saturday, the launch of South Asian Channel, called Zee TV. Targeted to start from 2 October for three hours a day, it will gradually expand to a 24-hour service within a year.

Predominantly in Hindi, it will present an entertainment-based mix of programmes including films, serials, chat shows and soap operas.

Aimed at urban upper-income Indian households as well as the over 20 million affluent NRIs and other Hindi-Urdu speaking audiences in about two dozen countries from Turkey to Singapore, Zee TV programmes will be available on 3980 Mghz for video and 6.8 Mghz for audio.

ATL has appointed an existing company in the Essel Group to source Hindi programmes in India. The company will change to Zee Telefilms Limited which will source, produce and acquire programming for the channel, Mr. Ranjan Issac of ATL said.

The combined Non-Resident and Resident Indian audiences, so far fed on foreign made, foreign language satellite programme, can now look forward to enjoy Indian programmes, produced by an Indian group.

IRAN

French Alcatel To Launch 'Zohreh' Satellite

92AS1427Z London *KEYHAN* in Persian 13 Aug 92 p 4

[Text] The Islamic regime in Tehran intends to sign an agreement with the French company, Alcatel, according to which this company will build and launch a communications satellite. The value of the contract in question has been estimated at about \$350 million, and the above-mentioned satellite, which is called Zohreh, will be built and launched by mid-1996. The journal, *INTERNATIONAL FLIGHT*, which is published in England, wrote this report in its last issue: "The agreement between the Islamic regime of Tehran and the French company, Alcatel, was signed with the provision that this company will exempt the building, delivery, and launching of the satellite from the regulations of any possible future economic embargo."

The above-mentioned publication added: "The agreement in question with France includes the launching of the Zohreh satellite with 'Aryan' missiles, of which the Islamic Republic will pay \$65.5 million for each to the other party in the agreement." *INTERNATIONAL FLIGHT* pointed out that the Zohreh satellite will weigh about 1,860 kg. The above-mentioned magazine added: "Even though the French Alcatel company will cooperate with two German and American companies to build and launch the satellite, the American company will not participate in carrying out the project of building and launching the Zohreh satellite" [as published].

A communications expert told a *KEYHAN* reporter that the Iranian Communications Company, affiliated with the Ministry of Post, Telegraph and Telephone of the Islamic

Republic, has ordered the Zohreh satellite from the French Alcatel company, and the person who, up to sometime ago, was negotiating to prepare the agreement with the French was Sheykh 'Attar, adviser to Gharazi, the minister of the above-mentioned ministry.

One year ago, French authorities raised the name of Sheykh 'Attar in the murder of Shahpur Bakhtiar in Paris, accusing him of planning the conspiracy and carrying out the murder of the last Iranian prime minister prior to the Islamic revolution. Apparently, from then on, the duty to pursue the negotiations to build the satellite was conferred on another individual or other individuals.

PTT Minister Gharazi Interviewed

NC2408112292 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 0245 GMT
23 Aug 92

[Interview with Mohammad Gharazi, minister of post, telegraph, and telephone, PTT, by an unidentified VIRI correspondent during the "Salutations, Good Morning Program" in Tehran on 23 August—recorded; all figures as heard]

[Excerpts] [Begin recording] [Correspondent] Engineer Gharazi: Good morning. Permit me to congratulate you on government week. God willing, you will be successful in your work.

[Gharazi] Salutations. I should congratulate you on principle. We are here to serve the people.

[Correspondent] Our listener friends would like to know what has been done in the communications field this year.

[Gharazi] I would have to rack my brains to remember everything that has been done this year. Even then it would probably be impossible. However, I have something written here for government week and I will read it.

In East Azerbaijan, we implemented new schemes as well as expanded old ones in 20 areas. We have some 256 schemes to expand service and 400 new expansion plans.

Some 9,604 telephone connections will be completed in the East Azerbaijan Province during Government Week. If I were to enumerate the work done in the 24 provinces, the statistics my brothers in the Public Relations Department possess, it would take up a great deal of time.

[Correspondent] How much is it in general?

[Gharazi] I need to look at the figures just in case. In the 24 provinces we have 177 connections; in 151 districts, there are 448 connections.

[Correspondent] You have said that many telephone exchanges will become operational during government week in various cities. What has been the cost of these projects?

[Gharazi] You can calculate it. If you multiply 170,000 by 80,000 tumans, and if you multiply 170,000 by 100,000 tumans it totals 17 billion tumans. Why are you switching off your tape recorder? [laughter] The people should know what the situation is. If you multiply 170,000 by 100,000

tumans it will be 17 billion tumans. If you multiply it by 80,000 will be 14 million tumans. This is the cost of government week.

I will merely say that in the year 1371 [year beginning 21 March 1992] the total planned investment is 77 billion tumans. Do you want me to repeat this?

[Correspondent] Yes, please.

[Gharazi] The investment in 1371 is 77 billion tumans for the telecommunications company. Where do we get this?

[Correspondent] Obviously from the people who pay the telecommunications company.

[Gharazi] Yes of course, it is on the basis of the confidence that we have inspired in the people. The money they pay is converted into telephone services for them. The reason for the success of our entire system is the confidence we inspire in the people. [passage omitted]

[Correspondent] Could you tell us about the activities of the past year?

[Gharazi] We achieved a lot last year. We installed 800,000 new telephone connections, of which 254,000 were installed in different parts of the country. We can only say that approximately 65 billion tumans were invested last year and that does not include employees' salaries. I paid 500,000 employees last year. It does not mean the same as an investment of 65 billion tumans. [passage omitted]

[Correspondent] Thank you very much. We pray for your success.

[Gharazi] Bless you and also thank you. God willing, I hope our people do not misunderstand our comments today. We do have some problems, but the work is continuing. [end recording]

Telephone Communication Network Expanding 93AS0023Z London KEYHAN in Persian 1 Oct 92 p 4

[Text] International communications companies are expecting the Islamic Republic to order technical equipment from them for 6 million telephone lines. For several months the Iran Communications Company has been studying proposals received from international companies in various parts of the world and it is expected that the final decision will soon be made as to which company will get the contract to procure the technical implements and equipment to install the 6 million telephone lines.

Based on reports received, so far more than 10 international companies producing communications equipment have submitted proposals to the Islamic Republic to sell this technical equipment. The value of the contracts proposed to the Iran Communications Company has been estimated at \$800 million. The international companies submitting proposals to the Islamic Republic with the best chances include [Siemens and Alcatel] of Germany, [Ericss] of Sweden, [N.A.C.] of Japan, a South Korean Company, and probably the American company AT&T.

The economic weekly MEED of London, in reporting on the sale of communications equipment to Iran, wrote that the decision of the Iran Communications Company, which

was to have been made this summer, will be made soon and its results will be conveyed to the international companies participating in the bidding. The publication added: It is thought that contract to buy communications equipment by the Islamic Republic will be the largest purchase contract of its kind that this country has given to foreign companies since the Islamic revolution.

Elsewhere in its report, the economic weekly MEED of London noted that by the mid-1990's the Islamic Republic intends to expand Iran's telephone network by assigning 10 million new lines.

Late last year (1991), two German suppliers of telephone equipment called [Siemens and Alcatel] signed a \$180 million contract with the Islamic Republic to procure the technical equipment to build 1.2 million new telephone lines.

TV Satellite Station Launched in Ilam

NC1609162692 Tehran Voice of the Islamic Republic of Iran First Program Network in Persian 0630 GMT 16 Sep 92

[Text] The (Qalajeh) television satellite station in Ilam province has become operational. With the operation of this 10-watt station, residents in 18 villages in Asemanabad town within Ilam province's Shirvan-Chardavol district can view the first and second network programs of the Vision of the Islamic Republic of Iran.

This satellite station was built by the workers who maintain television and FM transmitters for the Voice and Vision of the Islamic Republic of Iran in Ilam.

IRAQ

Turkish Paper Reports 30-Minute PKK Radio Broadcast 2 Oct

NC1510081592 Istanbul SABAH in Turkish 10 Oct 92 p 11

[Excerpt] [passage omitted]

A 30-Minute Broadcast

A radio station reportedly established by the Kurdish Workers Party [PKK] in one of its camps in northern Iraq came on the air with a 30-minute test transmission early on 2 October. The radio was to have broadcast for 60 minutes, but intensive fighting in the region prevented it from doing so. The radio reportedly had to interrupt its transmission because the PKK militants were forced to evacuate the camp from which they were broadcasting. [passage omitted]

LEBANON

Kuwait Extends Loan for Telephone Network Renovation

NC1210194392 Beirut Radio Lebanon in Arabic 1630 GMT 12 Oct 92

[Text] A loan agreement was signed today between Lebanon and the Kuwaiti Fund for Arab Economic Development [KFAED] that will provide Lebanon with a loan to finance plans to renovate local telephone networks. Minister Michel al-Murr and KFAED Director Badr al-Humaydi signed the agreement. The loan will cover 71 percent of the total cost of the project. Minister al-Murr said that the \$35 million will be repaid over 20 years at a 3-percent interest rate. Al-Humaydi said that the next project that the KFAED will finance is the Beirut water project.

ARMENIA

Leaders Agree on Karabakh TV Broadcasts

NC1909210192 Yerevan SNARK in English
1450 GMT 17 Sep 92

[Text] Stepanakert, 17 Sep (SNARK)—The inhabitants of Armenia will soon watch the broadcasts of Karabakh TV. Vardges Bagiryan, the deputy chairman of the Karabakh Committee of TV and Radio, has informed the SNARK reporter on the agreement between the leaders of the Armenian and Karabakh TV to broadcast the programs prepared in Stepanakert. It is expected to broadcast three times a week. It is not the single fact of coordination between journalists of two Republics. The Armenian Department of Radio and TV helped the Karabakh colleagues to acquire the corresponding video-apparatus, to equip the studio. The artillery firing and bombing of the Karabakh Committee of TV and Radio caused the loss of tens of millions of rubles. Recently the TV journalists of Armenia sent food to their colleagues.

New Industrial Information Service 'GIND' Established

NC1310205992 Yerevan ARMENPRES International
Service in Armenian 1215 GMT 13 Oct 92

[Text] Yerevan, 13 Oct (ARMENPRES)—A new special information service "GIND" [expansion unknown] has begun operating in Armenia. It is supplying comprehensive information on firms, enterprises and establishments. Information may be obtained from the newly established service by telephone, through subscription to its bulletin, and through the computer network. The agency's bulletin provides the telephone number, the scope of activities, specialties, supply-and-demand requirements and other information about firms.

GIND is paid by those firms that are interested in becoming widely known to the public. The subscribing firms are then included in GIND's database. At present, membership fee is 750 rubles per year.

GIND's telephone number is 589167.

New Kurdish Radio Program To Promote Independent Statehood

NC1310210892 Yerevan SNARK in English
1523 GMT 13 Oct 92

[Text] Lachin, Oct 3 (SNARK)—The premiere of the radio program of the "Lachin Voice" Kurd radio station will be released on this week. Alikhane Mame, the head deputy of the Kurd Freedom Movement, has informed of the above fact SNARK's reporter. This 30-minute program will be on air on short waves at [garbled passage].

Citing Alikhane Mame, the new program aim is to cover the local Kurds life and to gather forces to create the independent Kurd statehood.

AZERBAIJAN

Ministry Examines Communications Systems Situation

NC2208210792 Baku Radio Baku Network in Azeri
1700 GMT 17 Aug 92

[Text] The Azerbaijan Ministry of Communications association convened on 15 August to examine January-June 1992 work and the communications systems in the rayons in which there are military operations. Although the status of the communications systems in the field was explained in detail, the journalists, who were invited to attend the meeting, asked several questions about the matter. Leading ministry officials replied to their questions at a news conference held between the association's sessions by Minister of Communications Firuz Abbasbeyli.

Many of the questions were on the communications situation in the troubled border rayons, the telephone exchange centers work, and the question of preparations to increase the cost of services. In short, the questions concerned matters which have made urban and rural subscribers uneasy. It was noted that telecommunications workers were the last to leave the enemy-occupied cities and towns and that telephone and telegraph links have been established in all residential areas except those occupied by Armenian units.

Referring to general communications problems, Abbasbeyli asserted that funds have not been allocated for obtaining automatic telephone exchanges or for the (?modernization) of existing systems during the past few years. He said that the communications systems will be improved considerably in Baku and in the Republic's rayons as a result of the current measures. Several measures have been drawn up so the Republic can purchase modern systems from foreign countries to replace our existing ones.

ESTONIA

Estonia Plans To Modernize Phone System

92WT0232A Tallinn THE BALTIC INDEPENDENT
in English 21-27 Aug 92 p 6

[Text]

ET Phones Home

Residents of Tallinn will be able to direct dial the United States and Canada by the end of September. By October, Germany, France, Great Britain, Denmark and Norway will be directly accessible as well, according to Eesti Telekom Deputy Director General Jaak Ulman. And by February of 1993, hopefully, it will be possible for them to direct dial anywhere in the world. For most Tallinn residents, this will be nothing short of a miraculous improvement.

Like most things Soviet, the old telephone system in Estonia simply doesn't work. Calls from across the street sound like calls from the moon. Calling Latvia or Lithuania is frustratingly difficult, often just direct dialling Riga is simply not an option. Calls that do get through are disconnected at random, leaving the caller facing the prospect of trying to dial another ten times or placing a call

and waiting half hour in exchange for another few minutes of talk. Placing a call to the West can take the better part of an afternoon.

The basic fact is the Soviets who built the system never really wanted their citizens to communicate, especially with those outside the Soviet Union. Today, an entire year after independence, Estonians living in the capital can still only direct dial Finland and Sweden.

The problem goes beyond the paranoid belief of the old Soviet government that any of its citizens calling the West was either a dissident or a spy. While average citizens waited for years for a crackling phone line in their apartment, KGB officers had direct dial phone lines installed at a moment's notice. The outcome is that the civilian telephone service system is a dinosaur which must evolve or it will simply disappear.

The weakest link in the telephone system today is the lack of a sophisticated exchange in Tallinn. Estonia is poorly connected to Tallinn, and Tallinn is poorly connected to the world. At present there are only two international gateways, one to Sweden and Finland via Helsinki, the other to the rest of the world through Moscow. The Helsinki gateway can handle 60 channels, the Moscow link can handle only 19 incoming and 20 outgoing channels.

To remedy this, Eesti Telekom has contracted out Oy Ericsson AB, the Finnish subsidiary of Ericsson Sweden AB, to build a new international exchange in the capital. The exchange will have a direct digital fibre-optic cable link-up to Helsinki. By the end of the year it will be possible to direct dial Western Europe from most cities, spokesman Jukka Huhtanen of Oy Ericsson AB said.

Additionally, the Estonian government is now finalising an agreement with Swedish Telecom and Telecom Finland to improve basic service throughout the country by December this year. The two Scandinavian companies beat many American competitors to the deal including American Telephone and Telegraph (AT&T), Bell Atlantic and US Sprint.

According to Mr Ulman, the US bidders were only interested in constructing the international links, judging any internal phone system to be a money loser. In general, local phone systems run at a loss while international traffic reaps high profits. But since the majority of foreign ventures in Estonia are Swedish and Finnish, their respective phone companies were more willing to help develop Estonia's internal phone system.

Eesti Telekom and its Scandinavian partners will begin constructing a digital exchange network this autumn parallel to the old analogue network. Five thousand new digital-subscriber lines will be built this year. Over the next few years they plan to build 20,000 new digital-subscriber lines and lay over 150 kilometres of fibre-optic cable a year, as well as build digital radio links between—less accessible hubs in Estonia.

Mobile Phones Are Best Cellulares

The greatest status symbol in Estonia is a cellular phone. Every cafe in Tallinn seems to have at least one customer sipping coffee and chatting via satellite, basking in the envy of his fellow patrons. The truth for many businesspeople, though, is that being able to bypass the local phone system is necessary rather than glamorous. Instead of listening to engaged signals all day, most businesspeople simply prefer to have a Finnish or Swedish phone number. Of ten major Western embassies contacted, five have Scandinavian cellular lines.

When Estonian Mobile Telephone (EMT), an Estonian-Swedish-Finnish joint venture, began service on July 1, Estonia became the second Baltic State after Lithuania to have its own mobile phone network. It has since been flooded with business, selling over 1,200 subscriptions, according to spokesman Raine Monkkonen.

The network covers most of Estonia, including Tallinn, Tartu, Parnu, Haapsalu, Viljandi and Kohtla-Jarve. It also extends to Riga and some parts of northern Latvia. To "roam" into Lithuania or the St Petersburg area requires a subscription to a local network, but a full roaming agreement may be reached this autumn.

Phones cost on average 18,000 kroons (US \$1,500). The connection fee is 1,860 kroons (US \$150) of which 1,500 are refundable upon terminating service and paying all outstanding bills. Both receiving and placing a call costs money, currently 4.5 kroons (US 36 cents) a minute.

The company is 51 per cent owned by Eesti Telekom, with Swedish Telecom and Telecom Finland each owning 24.5 per cent.

Free Public Phones Make No Sense

Some of the best things in life are free, and so are some of the worst. Tallinn's public phones are among the latter.

Due to the enormous cost of adapting public phones to accept Estonian cents instead of Russian kopecks, Eesti Telekom has simply decided to let people use the phones free of charge.

The downside is that nobody seems to take care of the phones anymore. Vandalism in general is on the increase, and public phones are not spared. Tallinn Telephone Company Director Eduard Saarma said that in one night, 28 public phones had been destroyed by vandals. A casual survey of Tallinn phones revealed that only six out of thirty public phones (20 per cent) were in working condition.

For the time being, the phones that actually work will remain free. By January, a decision will be made whether to use special tokens in the phones, as in Riga and Vilnius, or to convert the phones to use magnetic phonecards as in many Western countries. Although a card system would be expensive, it might reduce vandalism because there would be no money in the phones to steal.

CYPRUS

Church-Run TV in Financial Bind, Drawing Few Viewers

NC0808144692 Nicosia ALITHIA in Greek 6 Aug 92 p 1

[Report by Takis Agathocleous]

[Text] The Holy Archbishopric has taken out a loan to cover financial problems at the O Logos television station. This confirms recent press reports that the church has lost huge amounts in operating the station.

According to exclusive ALITHIA reports a few days ago, Holy Archbishopric accountant Ilias Pandelidhis went to London and after negotiations proceeded to contract a loan from a British bank totaling \$2.5 million (about 1.1 million Cyprus pounds) to cover emergency needs. The loan was drawn up in the name of the Holy Archbishopric and a significant amount will be used to increase the power of O Logos' transmitters so the stations can cover the entire island. The rest will be used for other emergency needs.

In a statement to ALITHIA, a Holy Archbishopric representative confirmed our information on the loan but refused to give any details on the amount of losses so far for the church.

He said, however, that the conditions of the loan are favorable and that its transaction is not considered a bad move (from a financial point of view).

The same representative said O Logos' economic situation is good. To a new question concerning the church's amount of losses from the station, he replied: "We spent more than we wanted, but much less than what others think."

He also said the Holy Archbishopric was forced to take out the loan from abroad because the Archbishopric has contracted several loans locally and there is no chance of receiving a new loan in Cyprus. Finally, he said the church is satisfied with the operation of O Logos so far.

The Money Vanished

Independent of the above statement by the Holy Archbishopric representative, other sources aware of the situation at O Logos have said:

1. Losses so far from the operation of O Logos in coordination with the investments made (construction of the building, equipment, etc.) amount to several million Cyprus pounds.
2. The initial budget allocated by the church for operating O Logos has vanished and that is why it was forced to take out a loan from abroad.
3. Indicative of the above financial problems are the following incidents:

- (a) O Logos correspondents remain unpaid and as a result, some of them have applied to CyBC [Cyprus Broadcasting Corporation] for work.

- (b) Due to a lack of cash, the Holy Archbishopric still has not paid CyBC 500,000 Cyprus pounds to secure facilities in the Troodos for expanded television coverage.

4. The Holy Archbishopric is not satisfied with O Logos' results so far and its low popularity. Furthermore, the Holy Synod is divided because most metropolitans disagree with the establishment of O Logos. The Kykkos Abbot, who supports O Logos operating, disagrees.

5. O Logos advertising percentages are very low and according to CyBC data, many businessmen who originally bought time on O Logos amounting to tens of thousands of pounds abandoned the station and have bought time exclusively on CyBC. (According to press reports, O Logos' directors are considering increasing the amount of popular secular movies, aiming to increase its audience.)

DENMARK

Teledata Closes; Diatel Operations Outlined

92WT0246A Copenhagen BERLINGSKE TIDENDE in Danish 23 Sep 92 p III

[Article by Asbjorn Jorgensen: "Teledata Closes"]

[Text] The telephone companies are getting rid of Teledata, which has cost 25,000 kroner per user. A new service will provide private individuals electronic access to municipal information, shopping, timetables, news, and direct transfer payments.

Teledata's demise will be announced today when letters are received by the firms that still provide information via the telephone companies' 10-year-old system.

The expiration date is set for 30 September 1993. Already no new services are being offered and contracts for the present services will not be renewed.

The next day, 1 October 1993, a new system will start operating. Behind it stand Jydsk Telefon and Kommunedata, which will aim the service, Diatel, at private individuals who will have access to a wide array of useful services via PC's, modems and telephone lines.

This time it must succeed. The unsuccessful Teledata attempt has around 6,000 users and has cost the telephone companies at least 150 million kroner—or 25,000 kroner per user.

Jydsk Telefon and Kommunedata are pumping 40 million kroner into the new company, Diatel, Inc.

The entire operation will build on the experiences, most of them bitter, of other European videotext systems. So Diatel is choosing the French teletel standard, which is also used in the French minitelecommunications system with 6 million users.

Diatel's selection will be aimed specifically at the hundreds of thousands of private homes that already have home computers. Unlike the moribund Teledata system it will not fire a round of scattershot at both private and corporate customers.

"Teledata offered so much. But the concept does not work," said Jydsk Telefon section chief Jan Carlsen.

Therefore Diatel will retain the right to make final decisions concerning which providers will furnish information—and how.

One Hundred Kroner a Month

All users with the necessary equipment will have access to Diatel without registration. Some information will be available without paying the provider. For example home banking, ordering from stores, and timetable information.

But other information will cost money and require a user code. Diatel will add up the charges, send bills for the amount due, and pay the information providers.

The Diatel partners estimate that users will pay an average charge of 100 kroner a month.

Diatel has already contacted banks, travel agencies, newspapers, and others who want to be ready in Diatel's data bases when the service becomes commercial a year from now. The state, municipalities, telecommunication companies, public and private businesses and associations can act as providers.

For ordinary Danes the advantages will be that Diatel is accessible 24 hours a day, is simple and quick to use, and saves time in carrying out bank transactions, purchases and so forth.

And suddenly, ordinary people will have access to data base searches, electronic mail, computerized timetables, fax, etc.

ISDN Subscriptions Increasing Rapidly

92WT0243A Copenhagen BERLINGSKE TIDENDE
in Danish 15 Sep 92 p 2

[Article by Asbjorn Jorgensen: "Big Firms Banking on ISDN"]

[Text] *ISDN is the English abbreviation for the Integrated Services Digital Network. Data, sound, and pictures can be transmitted simultaneously at high speed by telephone through one outlet. The ISDN network is a kind of addition to the telephone network and subscribers "call each other up" via an ISDN number.*

The nine-month-old ISDN network is about to make its breakthrough. Only 6 percent of the big Danish companies will not use the data network that is designed for the transmission of data, sound, and images.

More than one in four big firms in this country have decided to use the telephone companies' new ISDN network for data transmission.

This is shown by a survey conducted by the Expansion Marketing consulting firm among 1,600 of Denmark's biggest companies. There were 332 responses.

Only 6 percent of the firms have decided not to use ISDN. And of the doubtful firms a very large percentage already anticipate investing in ISDN eventually.

"The first ISDN users have the same problem as the first users of the telephone.

"There are only a few fellow subscribers with whom they can communicate," said Expansion director Helle Bordigaard.

Jon Mikkelsen, administrative director of CMA Data, which sells computer operation and communication solutions, said the trend is moving toward more integrated networks like ISDN.

"ISDN is an obvious solution for a service employee, for example, who can communicate with his main office using data, sound, and video images.

"But customers are waiting for the technology. We still lack the products that can link electronic data processing and communication," said Mikkelsen, whose firm has already experimented with ISDN as part of CMA Data's data communication solutions.

The Tele Danmark companies have not yet started a massive ISDN marketing effort. Part of the reason is precisely the lack of products to sell.

At the same time ISDN is a direct competitor of several of the data network products Tele Danmark already delivers—with poor success. By the way, Tele Danmark has just collected the networks in a central company.

FRANCE

Matra, Northern Telecom Establish Partnership

92WS0706H Chichester INTERNATIONAL
TELECOMMUNICATIONS INTELLIGENCE in English
13 Jul 92 pp 4-5

[Unattributed article: "NorTel and Matra Establish Telecom Partnership"]

[Text] At a press conference held in Paris on July 2, Northern Telecom and Matra Communication, the telecommunications division of Matra, the French defence electronics group, announced a strategic alliance.

The alliance, which is subject to approval by the French Government and other authorities, will enable Northern Telecom to continue its European and worldwide business development, and Matra to support its strategy for international telecom business growth.

Under the terms of the agreement, NorTel will pay US\$265 million to acquire an initial 20 percent direct holding in Matra Communication shares from 1995. NorTel is also negotiating to take a minority stake in a new holding company which will merge Matra with Hachette, the French publishing company, also controlled by the Lagardere Group, Matra's parent company. The new holding company will manage Matra Communication.

Matra is also offering to acquire the 18 percent stake held by the French investment bank, Paribus, in its communications subsidiary for Fr295.70 a share. The same offer has been extended to other minority public shareholders with 12 percent of Matra Communication.

After 1995, Northern Telecom will own at least 20 percent of Matra Communication, which will also be owned by Matra Hachette (50.1 percent), itself 40 percent-owned by MMB (of the Lagardere group) and AEG (10 percent). Northern Telecom could, eventually, end up with 39 percent of Matra Communication, or even 49 percent depending on AEG's reaction.

Other terms of the deal include:

- the formation of a 50/50 joint-venture between NorTel and Matra Communication in GSM/PCN radio communications. NT Matra Cellular Systems will be responsible for developing and supplying cellular infrastructure switching and radio equipment for public networks using ETSI GSM-900 and DCS-1800 specifications and the Radiocom 2000 specification.

The joint venture will combine Matra's radio base station technology and NorTel's digital cellular central office switching.

Matra is also a member of a consortium comprising Orbitel, Ericsson and Telettra formed to develop infrastructure and terminal equipment for networks built to the GSM standard. Contracts were placed by France Telecom and Racal Telecom in 1987 with this consortium for the development of networks for France and the Vodafone network in the UK.

In 1989, France Telecom commissioned Matra and MET (the Matra-Ericsson switching equipment joint venture) to build a pilot digital cellular communications network to serve 10,000 subscribers.

The same year, the consortium was selected to supply GSM systems for administrations in Italy, Switzerland and Spain.

In June 1991, Matra Communication and AEG of Germany announced a collaborative agreement which involved a transfer of ownership of some AEG companies in return for a stake in Matra Communication and joint-development of mobile communications equipment. This agreement covers the business radio communications and cellular mobile market sectors, with particular emphasis on the digital cellular handset and specialist business system markets (see ITI Issue 299).

Matra also has an agreement with Orbitel (now 50 percent-owned by Ericsson) covering co-operation in the development of telepoint terminal and infrastructure equipment. In October 1990 the two companies were selected by France Telecom to supply base stations and terminals for part of FT's Pointel trial in Strasbourg. This experimental service was inaugurated a year later. Matra/Orbitel, GPT and SAGEM provided the equipment. The service is known locally as Bi-Bop. Effects on this agreement are not known.

Northern Telecom itself is involved in another digital cellular joint venture—with Motorola. Earlier this year the two companies established Motorola-Nortel Communications to sell and service cellular telephone networks throughout the U.S., Canada, Central and South America and the Caribbean.

- the development of the Matra Communication and NorTel PBX business in France. NorTel will transfer its existing PBX marketing, sales and service organisations into Matra Communication. The companies intend to coordinate product and sales policies in France and to develop standard interfaces between their respective PBX product ranges to enable customers to benefit from NorTel's Meridian 1 PBX range and Matra's Matracom 6500, in addition to advanced networking applications.

It is not known how the Matra/Northern Telecom alliance will affect Matra's other PBX activities. The company is already the exclusive supplier of PBXs to AT&T's customers in France and French overseas possessions. The agreement covers the 6500 and allows the product to be interconnected with AT&T's global network. The 6500 can also be interfaced with AT&T's Definity range of PBXs, most of which are installed in the U.S.

In addition, Matra owns Intecom (acquired from Wang Laboratories in 1990) which manufactures a range of PBXs from 100 to 21,000 voice/data lines—the Telari and Integrated Business Exchange (IBX).

- the proposed formation of a centre of excellence in France for telephone sets;

- the formation of a 50/50 joint venture between Northern Telecom and Matra Communication to develop their respective Public Network businesses in France. In particular, the Public Networks joint venture will have responsibility for marketing Northern Telecom's packet-switching and transmission products in France.

This part of the agreement clearly omits public switching which is presumably excluded because of the MET joint venture company.

Matra is a leading French diversified industrial group incorporating defence, aerospace, communications and transport activities which constitutes the high technology segment of the Lagardere Group. Matra Group sales in 1991 amounted to US\$4.4 billion.

Matra Communication reported sales in excess of US\$1.2 billion in 1991. Among its range of telecommunications operations, the company has about 20 percent of the private branch exchange (PBX) market in France and is one of the leading suppliers of telephone sets and cellular mobile terminals to France Telecom and other major European customers.

Telecommunications Minister on Deregulation

92BR0580X Paris *ENTREPRISES & TELECOMMUNICATIONS in French*
Jul-Aug 92 pp 76-78

[Interview with Emile Zuccarelli, French minister of post and telecommunications, by Herve Marchal; place and date not given: "Pushing Reform, but in a Balanced Fashion"]

[Text] The policy of the new minister can be summed up in two words: balance and reform. In his opinion, the status of France Telecom is an excellent blend of public service and competitive flexibility. Therefore, there is no need to privatize. Calculating that France has spent a small fortune on opening up (the mobile phone and satellite link) markets, he is calling for a status quo on the telephone network. Finally, he defends a new-look industrial policy which is flexible and efficient within the Community, but steadfast vis a vis the Americans and Japanese.

ENTREPRISES & TELECOMMUNICATIONS [E&T]: You have just announced the opening or continuation of 12 projects. How are you going to complete these major

undertakings—so reminiscent of Michel Rocard's "Herculean tasks"—between now and the next elections, in other words, in less than a year?

Zuccarelli: It would be rather boastful of me to claim that these 12 projects will be concluded within the few months in question. But governments always function on a continuous basis and I am therefore merely carrying on what was done before, particularly with regard to reforming the sector. In any case, I hope that some of the projects will be concluded within the coming months, and those that will not I aim to give a flying start.

What we need to do is make rapid progress and act dynamically. Let me take up a single example, namely the reform implemented 18 months ago. Well, 1991 saw the emergence of the new public telecommunications operator, France Telecom, henceforth organized like a public company: company auditing, analytic accounting, legal procedures, new contracts with customers, etc. Finally, a previous long-term planning contract [contrat de plan] between the state and the public operator consolidated this new organization and asserted its corporate autonomy.

In 1992, this reform will reach maturity. All we need to do at the moment is pursue international development and reinforce the tools of strategic planning and management as well as the legal means. For France Telecom, 1992 is also the year in which we will press on with the social part of the reform which, while engendering profound changes with respect to the grades and classifications of staff, represents a reform the likes of which has not been seen in recent decades in the public sector. And I am well aware that we must push ahead with this social reform without delay. I think that, in the coming nine or 10 months, we must do everything we can to ensure that all that remains to be done thereafter is sit back and let the natural rhythm of these events unfold.

In order to attain these objectives, France Telecom has also started to implement a new internal organization so as to fit in better with its environment and meet the expectations of its customers, both professional and regular ones.

E&T: As far as this reform is concerned, some people claim that it has not gone far enough and are demanding the privatization of France Telecom pure and simple. Do you believe that things actually have to be taken that far?

Zuccarelli: The reform is a good one precisely because it constitutes an excellent balance between the need to be faithful to a tradition of public service—in a strategic sector where the extent of state control remains large—and the opportunity given to the operator to pursue competitive activities and to adapt with the desired flexibility to an environment which is subject to very fast technological change. That is why this reform is well balanced.

So when it comes to privatizing France Telecom...why should we wish to change something that is working so well? To me it would be like creating a problem where there is none. We do have to have an efficient public operator. And in the current context, it has the means to be just that. Of course, ideological pressures are always

exerted by those for whom privatization has an inherent symbolic value. But that is not at all the way in which I approach the issue.

E&T: The Directorate on General Regulations (DRG) is implementing a policy which involves opening up specific sectors and services to competition. Is this process going faster than you would like?

Zuccarelli: This is a fairly recent directorate and one which is held in high esteem by my ministry. It is not intended to take action independently of that taken by the minister. The DRG is one of the government's instruments of action. In the context of the guidelines which it has been given, it is a division which is working very well. Its mission is not to liberalize the sector, nor is it to privatize; it is to ensure that regulation complies with the legal framework which we have established in Europe and in France. Having said that, it needs no further stimulus. In some areas (mobile and satellite communications), the ministry has anticipated Community directives. These are sectors where competition enables the market to develop along the lines anticipated (mobile telephony, radioelectric distributed networks, VSATs [very small aperture terminal]...to mention just the best-known examples) without impinging on France Telecom's monopoly on wire infrastructures open to the public which are now highly efficient. Thanks to the action we have taken, the face of the telecommunications sector has been radically transformed over the last two years. This transformation has followed the development of the sector, without any other a priori factors. In 1987 there was a European Green Paper on telecommunications, followed in 1990 by a national law. These texts have been most diligently and effectively implemented by the Ministry of Postal Services and Telecommunications.

The diligence with which we have applied the European regulation makes things very comfortable for us today, although we must take care, for the European directive of 1989 provides for an assessment of how well the telecommunications sector is functioning within the framework of this new regulation. Depending on the results, it might lead to slight modifications in two years' time. However, as we are starting out on the basis of a European regulation which works and which is the object of overwhelming agreement, there is no need to take hasty action. If corrective measures indeed have to be applied to this balance, they will only prove possible after prior and extensive consultation with the member states. However, we shall vigorously oppose any changes which might excessively disrupt this balance.

E&T: The British Secretary of State for Trade and Industry Peter Lilley recently stated that the British would like to see competition applied to the basic network, the telephone network. Will you go along with this kind of development?

Zuccarelli: The 1989 agreement did not include voice telephony in the open sector. The review of this very important issue would constitute a very major and serious shift in the balance which we attained at that time.

E&T: Nevertheless, on 1 July it will be the turn of the British to take on the presidency of the Community....

Zuccarelli: The European Community comprises 12 member states and the Presidency naturally offers possibilities to alter the timing of certain issues and deal with them at a faster or a slower pace. However, it does not offer any way to radically alter existing balances.

E&T: France seems to be well placed in the telecommunications sector; it has strong manufacturers and a healthy operator. This shows that the State knows what it is doing. What do you see for the future in the light of this situation? Are you optimistic?

Zuccarelli: Over the last 20 years we have witnessed tremendous expansion in the telecommunications sector, even if the sector has more recently been facing up to three challenges: First, the slackening off of growth insofar as the basic equipment has, for the most part, been produced; second, the deregulation of markets associated with the internationalization of activities; and third, the extraordinary rate of technological progress. These challenges are demanding on the national operator and our entire industrial fabric, but France has a much-envied public service and recognized know-how.

Our strong points are considerable. We now have a very strong image, thanks to the achievements of the last 15 to 20 years. Our telecommunications network is among the best in the world. Technological choices favoring digital switching gave us a leading edge and enabled us to develop technical masterpieces and commercial successes, such as minitel [videotex system] or Numeris [France's integrated services digital network (ISDN)].

Our industrial fabric includes the world leader, Alcatel, a major international symbol of quality and reliability. Our manufacturers are developing a number of technological niches, such as TRT [Radioelectric and Telephone Telecommunications Company] in the area of rural telephony with a market share of 40 percent, and SAGEM [Company for General Electricity and Mechanics Applications] in the area of printed text transmission and also in directional radio links and fiber optics. In addition, the 1992 telecommunications revenues of the Matra group will amount to something like 8 billion French francs [Fr] in 1992.

I would like to add that we still need to coordinate the activities of our public and other companies abroad. This is one of my concerns. But I am convinced that we have the potential to remain among the world leaders. So you see I am decidedly optimistic and, on top of that, I am ambitious for our country.

E&T: Your 12 projects include electronic bulletin boards. This is a problem which has been afflicting the sector for months. How can the need to conserve this free domain be reconciled with the establishment of a reasonable regulation?

Zuccarelli: This is a social problem which arouses many—and varied—reactions. My view is not to let this business drag on, but rather to give it due consideration before the issue is raised too eruptively in public. In fact, bulletin boards can pose two kinds of problem: First, they may upset people. In this case, we must look at solutions such as access keys, locks, or call parks, i.e., codes enabling parents to control access. Secondly, and this problem is of a criminal nature, they may advertise illegal actions, racism,

or even violence. Here, the punitive step to be taken at one time or another is to impose a ban. Nonetheless, we cannot carry on like an arbitrary censor, so we have to think about the authorities likely to pronounce such a ban. When all is said and done, it is a minister who will have to ratify the decision, but he will cover himself with all kinds of precautions, either by referring to the legal order or by referring to an ethics committee which still remains to be set up.

E&T: Another subject close to your heart is mobile phones.

Zuccarelli: We are familiar with car phones, but telephones for carrying around with us everywhere we go are an entirely different matter. The market for such a product is phenomenal, and still in its infancy. The dilemma remains, however, of how to manage the frequency spectrum. This problem will become acute in the next few years. Frequencies are gradually becoming a rare commodity, and I have my doubts as to whether their status as a free resource, which is widespread, can persist much longer.

E&T: Let us return to the subject of Europe, if we may. Is there still any sense in talking about industrial policy at Community level for telecommunications and the entire electronics branch?

Zuccarelli: We are having to embark on a new phase of European construction. In fact, we must strengthen our industrial power. Harmonization must not be allowed to weaken French and European companies. We cannot allow Europe to be a simple free trade zone, a sort of soft-bellied economy.

Consequently, I am hoping for the establishment of a firm industrial policy in both the telecommunications and electronics sectors.

This industrial policy must translate into several forms of action. First of all, reciprocity agreements must be concluded between European, North American, and Japanese interests. The European market cannot be left wide open to competition from outside Europe if our companies are denied access to American and Japanese markets. So we need to go further than the inadequate reciprocity which exists today. When we have achieved this, telecommunications in Europe will be affected by the mergers and restructuring of its industrial entities. In fact, in order to remain competitive after the vertical integration of the Americans and Japanese, European manufacturers will have to conclude vertical strategic cooperation agreements. The Community must refrain from impeding such rapprochements on the grounds of its criteria concerning the control of mergers which, obviously, do not apply to the giant American or Japanese concerns.

Moreover, we have to encourage research conducted within the scope of market-oriented projects and increase user participation. In this respect I am in favor of developing a dialogue between industrial concerns, services suppliers, and users aimed at defining tomorrow's products, especially terminal equipment.

In order to achieve these objectives, I would like to stress that France Telecom has to play an active supporting role in our industrial policy. It is doing this by means of its international activities in Mexico (share holding in Telmex, the national operator), in Argentina (entry into

Entel), and Poland (involvement in cellular mobile phone project). All these operations at the same time enable manufacturers from French or European industry to make inroads into these markets. Finally, through its policy of making purchases and providing new services in consultation with industry, France Telecom, whose investment level amounts to over Fr35 billion per year, is a powerful lever of growth for European manufacturers.

E&T: High-definition television (HDTV) is one of your major preoccupations and constitutes a kind of new technological barrier for France and Europe. And yet it is proving hard to make progress in this area.

Zuccarelli: HDTV is a sector in which Europe is playing a leading role. During the Winter Olympics in Albertville, France broadcast high-definition images for two weeks from 50 different sites. In Barcelona there will be 200 sites. Europe has another advantage, and that concerns the standard. The United States was last off the mark in developing HDTV and is seeking to vault directly into the final phase. However, there is no reason to believe that they will make it into the final phase as soon as some people are suggesting. They still have not decided which digital system to use, and they themselves have announced that they will not be ready before 1998, at the earliest. This means that we in Europe have all this time to develop our technological choices...provided that we waste no time in doing so. In other words, we have a certain edge.

E&T: Is France not rather isolated in this case?

Zuccarelli: Not at all. The support of our German partners was quite clearly reinforced yet again at the last summit in La Rochelle. This is an area in which we are convinced that we have to make swift progress. Especially if we are to solve the French internal problem. After all, we have no shortage of assets and arguments at our disposal to ensure that things move along swiftly.

E&T: Some people say that you are tackling the problem of cable links. Would it be fair to say that there is a French cable disease?

Zuccarelli: Cable has not yet given us everything it is capable of providing. Our situation, compared with that of other, neighboring countries, is short of satisfactory. That is why we are trying to remedy this situation by facilitating its installation in blocks of flats; by simplifying commercial procedures for customers, who in future will have just one interlocutor; by lowering prices thanks to a major effort on the part of France Telecom; by improving the range of programs on offer; and particularly by allocating more time to films. This incentive project, which was recently presented in the Council of Ministers, will prove effective provided that the adopted measures are followed up.

Philips Offers Full Range of SDH Equipment

92BR0554X Paris *ELECTRONIQUE INTERNATIONALE*
HEBDO in French 11 Jun 92 p 27

[Article by Lucien de Salagnac: "Future Transmission Standards: Philips Ready To Get to Work"]

[Text] As SDH [Synchronous Digital Hierarchy], which allows speeds of 2.5 Gbit/s on long-distance telecommunications networks, is leaving the laboratory stage. Philips, which boasts several pilot sites, is all set to play a leading role.

Philips is getting ready to enter the market for 2.5-Gbit/s long-distance transmission. Through its pilot projects, it could already show its expertise in SDH, the new synchronous hierarchy standard adopted in 1988 by the CCITT [Consultative Committee on International Telegraph and Telephone] for multiplexing and very high-speed transmission (at 155 Mbit/s or more) of digital signals along telecommunications networks. (155.52 Mbit/s is the speed of the first SDH level. The higher levels are obtained by the synchronous byte multiplexing of first-level signals. The higher speeds are then integral multiples of the speed at the first level: 622.08 Mbit/s, then 2.488 Gbit/s, etc.) Derived from the American SONET standard and compatible with current American and European standards, SDH will make it possible to build a worldwide, standardized transmission network with modifiable network topologies, allowing the best use of available transmission capacities. Its other characteristic is that it allows the insertion or extraction of individual digital signal channels from a multiplex of a superior hierarchy without having to demultiplex the whole of the signal; the multiplex is reorganized using patchers [brasseurs].

First Step Toward Equipping Spanish Network

Unlike its main competitors, Philips—through its Nuremberg-based Philips Network Systems division, which belongs to PKI [Philips Communications Industry]—is perfectly capable of producing all the elements needed to build and implement an optical transmission network based on the SDH standard. In particular, SLE-4 and SLE-16 synchronous line equipment and power amplifiers. The SLE-4 (four input interfaces at 155 Mbit/s) comprises a synchronous line multiplexer operating at wavelengths of 1,300 and 1,550 nanometers and the corresponding line amplifiers. Moreover, Philips has developed an optical power amplifier derived from the SLE-16 line equipment which can transmit signals at a rate of 2.5 Gbit/s over a distance of more than 200 km without signal amplification. This amplifier, the product of a cooperation between the Nuremberg laboratories and the Eindhoven laser production unit, features a power gain of more than 12 dBm.

The main Philips pilot site in Spain comprises three links: Madrid-Seville, Madrid-Saragossa-Barcelona, and Madrid-Valencia-Barcelona. Set up for the World Exhibition and the Olympic Games, this arrangement is the first step in equipping the Spanish network with SDH. However, Philips' ambitions go further than this. The Dutch group has already left its marks in Australia and Germany.

Alcatel-Bell Develops Multipurpose Image Codec

92BR0593X Paris *ELECTRONIQUE INTERNATIONALE*
HEBDO in French 25 Jun 92 p 28

[Article by Francoise Grosvalet: "A Universal Video Codec for Broadband ISDN"]

[Text] Six standard-cell circuits and several standard components have enabled Alcatel Bell to integrate a universal image coder-decoder on a board based on the double Europe format.

Together with the Belgian design company SdM (Microelectronics Company) and the Catholic University of Louvain, Alcatel Bell has developed a range of six specific circuits intended for the development of a prototype universal video coder-decoder on a double Europe format board. This codec [coder-decoder] has been especially designed for transmitting coded digital TV signals along the broadband integrated-services digital network (B-ISDN). To this end, it is CCIR601/656-compatible for the transmission of digital TV signals at 216 Mbit/s. The interface for coded signals is compatible with the 155-Mbit/s ATM [asynchronous transfer mode] format recommended by the CCITT [Consultative Committee of International Telephone and Telegraph] for B-ISDN. The Alcatel Bell image codec will therefore be able to handle a wide range of video services, including studio-quality telecasting, high-quality video phone services, and the transmission of high-resolution still images. It is equally suited to interactive video and distributed video. Different quality levels and bit rates can be selected.

The universal image codec was developed at Alcatel Bell; SdM designed the six complex specific circuits required for signal coding and decoding. Besides these six circuits, the image codec comprises a standard DCT [discrete cosine transformer], memories, and a microcontroller. All these components have been integrated onto a double Europe format card.

One- and Two-Micron Standard Cell Circuits With On-Chip Memories

The YUV video components are processed in a single coding or decoding pipeline operating at 27 MHz. Each specific circuit is programmable via a serial or parallel interface so as to enable a choice between several image formats or types of application.

The first specific circuit, referred to as CIM, is an image controller which prepares the data for encoding (it actually transforms the lines into blocks). It also generates the synchronization signals for the other circuits and is reversible for decoding operations. This circuit can also perform filtering, subsampling, and horizontal interpolation functions. It has been produced using standard cell 1-micron CMOS [complementary metal-oxide semiconductor] technology and comprises 18,000 logical gates and 1.5 Kb of RAM [random-access memory].

At the heart of the image codec is the second specific circuit, dubbed FXP, which comes after the standard DCT. This circuit performs the inter- or intraframe adaptive linear quantification.

This circuit aims to reduce data redundancy or to eliminate data that is not visible. It automatically adapts to different image formats and can function equally well in coder or decoder mode. This circuit has also been produced in 1.2-micron standard cell technology and comprises 21,000 gates plus 4.5 Kb of RAM. The quantified coefficients are then applied on the universal variable-length coder (U-VLC) which performs the entropic coding.

The decoding part has been integrated onto another chip, called U-VLD [universal variable-length decoder], which performs the inverse function as well as resynchronization and eliminating transmission errors.

The coder and decoder have been developed in 1-micron standard cell technology. The coder comprises 28,000 gates and 10 Kb of RAM; the decoder comprises 32,000 gates and 13 Kb of RAM. A buffer block, abbreviated BRX, serves as an interface between the coder and decoder and the ATM channels.

This circuit also includes a control device which monitors buffer contents. It comprises 18,000 gates on a 1.2-micron standard cell circuit. Finally, the packet assembling circuit (PKX) establishes the ATM adaptive layer and reorganizes data in cells comprising 48 bytes plus 5 bytes for the header information (the format chosen for the ATM cells). This circuit has also been produced on 1-micron standard cell circuits and features 24,000 gates, 2.8 Kb of RAM, and 4.6 Kb of ROM [read-only memory]. All the circuits were manufactured by ES2 [European Silicon Structures]. Last 4 June, the project earned the teams at SdM and Alcatel Bell the 1992 EuroAsic award, reserved for major enterprises.

ITALY

Telecommunications Sector To Be Restructured

93WT0001A Rome LA REPUBBLICA in Italian
27-28 Sep p 47

[Article by Edoardo Borriello: "Telecommunications Reform Starts"]

[Text] *There will be two management structures and a centralized unit for managing installations.*

Rome—IRI [Institute for the Reconstruction of Industry] has launched the plan for restructuring telecommunications. Early yesterday morning, Michele Tedeschi, Franco Nobili, and Corrado Fiaccavento (that is, the board of directors of IRI, Inc.) approved the plan that already tomorrow will be forwarded to CIPE [Interministerial Committee for Economic Planning].

The plan represents the first phase of the overall restructuring and is, therefore, subject to future developments. It provides for one "operator" to manage national telecommunications, one for managing international and intercontinental communications, and one for managing equipment and networks.

Yesterday's decision by the IRI board of directors has long been expected. Since last June, the plan agreed upon with STET [Turin Telephone Finance Company] has been the object of heated arguments among the members of the then-presidential committee of IRI (which was eliminated after the state-holding company was incorporated). The committee always postponed giving its approval, mostly on account of Socialist representative Massimo Pini's opposition (now an adviser to Giuliano Amato).

As soon as he was charged with forming the new government, Amato asked IRI to wait until his government had been formed before approving the project. In July, the prime minister repeated this request. Then came the

privatization of the state-holding company and the appointment of the new board of directors, which resulted in general manager Michele Tedeschi becoming president.

The restructuring plan approved yesterday establishes a new division of responsibilities between the companies operating in the sector, in order to guarantee uniformity of functions, efficiency, openness, and coordination. Duplications and overlapping markets will thus be avoided, and the differences between services provided under monopoly franchise and services supplied in a competitive environment will be taken into consideration. When the activities of IRITEL [IRI Telecommunications] (formerly ASST [State Telephone Services Agency]) are included, the backbone of the new structure in the IRI plan will be comprised of basically four elements:

- STET will be responsible for coordination and direction of strategy and rates and for complying with the regulations of the Ministry of Posts and Telecommunications.
- An "operator" for managing national telecommunications services on concession. This operator will perform free-market activities in connection with national telecommunications. It would be able to set up separate companies for some of the services or for specific activities. In practice, this operator will be in charge of all the national telecommunications services that are now handled by SIP [Italian State-Owned Telephone Company], IRITEL (former ASST), and SIRM [Italian Maritime Radio Company] (maritime radio frequencies).
- Another "operator" for management of international and intercontinental telecommunications services. This operator will carry out free-market activities connected with its operations through separate companies or divisions. In practice, this operator will be in charge of all the ITALCABLE [Cable and Radio Services] and the international telecommunication services now handled by IRITEL (formerly ASST).
- A company (yet to be set up and whose name will be

subsequently determined) that will be responsible for planning and operating all the long distance telecommunications installations (national, international, and intercontinental). It will be in charge of all the installations of ITALCABLE, TELESPIAZIO [Space Communications Company], those of the former ASST, and the so-called "SIP exchanges" (in this way SIP will continue to run its own installations). Other authorized operators will also be able to utilize the installations that are being merged under the new company. In the future, even the RAI [Italian Broadcasting Corporation] installations (broadcasting services) could join the new company.

While waiting for this restructuring to take place, Biagio Agnes, president of STET, is strengthening the international area. It has been decided to increase STET International's company capital from 10 to 135 billion lire. One of the objectives of this operation is to provide STET HELLAS (a wholly owned subsidiary) with the financial means to implement cellular mobile phone services in Greece. STET HELLAS recently received one of the licenses that was awarded by the Greek Government in an international competition.

STET International was created in April to coordinate the group's development abroad. The stockholders of the new company that is headed by Massimo Massini are: STET with 51 percent of the shares, SIP with 25 percent, ITALCABLE with 15 percent, and TELESPIAZIO with 9 percent.

Yesterday, an appeal was made to the government by one of SIP's two managing directors, Antonio Zappi (the other being Vito Gamberale), during a conference in the province of L'Aquila. He called for the government to take action quickly in support of the plans to develop the telecommunications sector. He reminded them that, "SIP is involved in an investment program of approximately 10 trillion lire annually, which is vital for closing the gap between Italy and the more technologically advanced countries."

The New Structure

STET

National Telecommunications	Installations Management	International Telecommunications
IRITEL (former ASST), SIP, SIRM	IRITEL (former ASST), ITALCABLE, TELESPIAZIO	ITALCABLE, IRITEL (former ASST)

Note: SIP [Italian State-Owned Telephone Company] will continue to manage its own structures. Agnes will strengthen the companies, coordinating the group's international activities by increasing corporate capital.

SWEDEN

'Fierce' Competition for GSM Mobile Network

92WT0236C Stockholm SVENSKA DAGBLADET
in Swedish 30 Aug 92 p 20

[Article by Gunnar Johansson: "Battle for Mobile Phone Customers"]

[Text] A real war is going on in the Swedish mobile telephone market. Three operators—probably one too many—are fighting for a fairly limited group of customers.

Televerket Radio, Kinnevik-owned Comvik, and Europolitan, backed by Volvo, Trelleborg, and others, are now flexing their muscles to win market shares when the computerized digital GSM [Global System for Mobile Communication] system is launched.

The starting points of the three firms' marketing efforts differ sharply:

Fierce Struggle

While Comvik and above all the newcomer, Europolitan, are stressing the benefits of the standardized European

GSM system, Televerket Radio prefers to push its well-developed NMT system in its marketing in combination with, and as a supplement to GSM.

Televerket maintains that the analog NMT system, which currently has 615,000 of the 650,000 Swedish mobile phone subscribers, will continue to be a vastly superior system for a number of years with its well-developed network and well-tuned and operating functions.

At the same time, for competitive reasons, Televerket is investing large development sums in an expansion of the European GSM system.

The battle for mobile phone customers is fierce. The important thing is to remain in contention in a market where development is occurring at a hectic pace. Each of the three operators estimates that the investment rate for building up a GSM network will be around a million kronor a day.

According to the forecasts on which Europolitan is basing its efforts, there will be around 700,000 GSM users in Sweden in 1995. The estimated figure at the end of the century is close to two million.

Televerket is more cautious in its appraisal of GSM development.

Step Along the Way

Lars-Erik Samuelsson is the company's mobile phone chief. He thinks there will be 1.5 million mobile telephones in Sweden in the year 2000. NMT will still account for roughly 40 percent of these.

"GSM is not a revolution; we feel it should be seen as a development, a step along the way toward the vision of the worldwide wireless communication society," he said.

Whether Televerket Radio is on the defensive, wishing to safeguard its many NMT customers or assure itself of continued sales of this analog system in parallel with GSM, or the company is more careful about offering a mobile telephone service that can live up to its promise is a question that only the future can answer.

Market Confusion

But it is quite clear that the market is characterized by confusion and uncertainty.

Denis Gilhooly, editor of the trade journal "Communications Week" in Paris, claims that in the next few years, mobile telephones will be an outstanding international growth leader in the communications sector.

But he is a trifle guarded when it comes to the expansion rate of the GSM system in Europe.

"European standardization has been delayed a year and a half. There are apparently difficulties where international cooperation is involved," he said.

Potential in Germany

According to Gilhooly the biggest growth potential for GSM is in Germany where the future market for mobile telephones is considered very good while at the same time the number of NMT phones is extremely limited.

In Sweden, which is the country with the highest mobile phone density in the world, there are currently around 10 times as many mobile phones in relation to the population as there are in such big continental markets as France and Germany.

Stockholm Commercial GSM Net by September *92WT0236B Stockholm SVENSKA DAGBLADET in Swedish 16 Aug 92 p 6*

[Article by Gunnar Johansson: "GSM Network To Expand Soon"]

[Text] A digital system in which telephone calls are controlled and transmitted by computer will be tomorrow's model for mobile telephones in Europe, according to all forecasts.

GSM, Global System for Mobile Communication, has now succeeded in getting 18 European countries to sign on, which means that for the first time Europe will have a common uniform mobile telephone system.

The governments of those countries have decided that there ought to be competition on the market, so most countries have at least two independent GSM operators.

Beginning in Stockholm

In Sweden, Televerket Radio, Kinnevik-owned Comvik and Europolitan, owned by Volvo, Trelleborg, the Nobel company Spectra Physics and England's Vodaphone, will compete for shares in a market that is expected to experience explosive development in the next few years.

On 1 September, Europolitan will start commercial operation, beginning in the Stockholm area. Comvik is also ready to get going. Televerket is expected to be ready sometime later this fall.

"I would guess that around 1 million subscribers will be using the GSM system in Sweden within five years," Europolitan president Flemming Orneholm told us. "By the year 2000, a GSM phone will be within reach of practically everyone, our calculations indicate that there will be 2.3 million subscribers in this country by then."

Digital System

The spread of the system in Europe is now leading the telecommunications branch to anticipate that 5 million phones will be connected as early as 1994.

By this fall GSM will cover Europe's capital cities and airports as well as most of the major roads.

In contrast to the old analog systems GSM is a digital system. Computers convert the analog speech signals to digital form and transmit them to the receiver where the signals are converted back to analog. This digital traffic is coded so it will be impossible for unauthorized persons to listen in.

The scratch and hiss of the old mobile phones will disappear in the GSM system with the help of the same technology that is used in a CD player.

Personal Card

GSM telephones are activated and controlled by so-called smart cards, small cards the size of a credit card that contain a microprocessor.

The cards are personal and can be used in any GSM telephone. Calls are billed to the person who owns the card, not the telephone.

People who call a GSM mobile phone number will not have to know the location of the receiver. The call is automatically connected to the right telephone regardless of where in Europe it happens to be. The system automatically knows where the card that is being sought is located—as long as it is in a telephone that is part of the system, of course.

The network is now expanding at a rapid pace. Europolitan alone is investing around 1 million kronor a day and that rate is expected to continue until the end of 1993.

This means the company will then have invested half a billion kronor and covered all of southern Sweden. After that expansion will continue to the north.

More Employees

"Today we have around 60 employees at our headquarters in Karlskrona. Within the next few years the number will grow to around 300 people," said Orneholm.

How much will this cost?

"The cost of a call will generally end up at the same level as today's calls," said Orneholm. "But as we anticipate an annual production volume of over 4 million GSM telephones, large-scale production will probably push retail prices for the phones down."

At present, close to 300,000 NMT telephones are produced a year, divided up among around 20 different manufacturers.

Growth of Mobile Phone Industry Tracked

92WT0236D Stockholm DAGENS NYHETER in Swedish
17 Aug 92 p 18

[Article by Jacques Wallner: "Cordless Phone for Every Swede a Reality in Year 2000"]

[Text] *Universal mobile phone ownership is becoming a reality. The telephone habits of the average Swede will be radically changed in the future.*

If the image of the mobile phone user in the 1980's was a well-dressed male option broker who talked about important business matters; in the 1990's it is a simply dressed retired woman who takes her small pocket phone out of her handbag to call her children.

In its infancy in the 1980's, the mobile phone was large, unwieldy, and exclusive. A sign of success reserved for a small minority. But that was then. Now we are in the 1990's and yesterday's luxury equipment is quickly turning into an everyday item for the general public.

Not There Yet

"People think all telephones will be cordless in the future. It is neither technically nor economically impossible that it

will be the case after 2000," said Per Bengtsson, information chief for Ericsson Radio Systems.

But there is still some way to go before we get there. Approximately 8 percent of the Swedish population, around 640,000 people, have mobile phones. That gives Sweden the greatest mobile telephone density in the world.

The watchword for today in the mobile phone market is segmentation. As in airplane travel, there will be a business class for those who can afford to pay for it.

The top 10 percent of the population is a group that is relatively insensitive to price: salaried employees whose mobile phones are paid for by their employers or self-employed people who write off the cost as a business expense. But cheaper pocket phones and lower rates are required to get the rest of the population to take the plunge and become mobile phone owners.

Down to 4,000-5,000 Kronor

Technical development and market development go hand in hand. The more mobile phones are sold, the larger the production series, which lowers production costs and in turn reduces phone prices.

A mobile phone that cost 27,000 kronor [SKr] two years ago has now fallen to less than half that price for a new phone—SKr12,000. For those who are satisfied with simpler models it is possible to find one for as little as SKr4-SKr5,000. That is every bit as revolutionary as the price development for personal computers.

"The breakthrough occurred when the portable pocket telephones came out four or five years ago. Since then development has been very rapid," said Bengtsson.

And prices continue to fall.

Germany and Japan

The market growth is unprecedented. In Sweden around 100,000 new subscribers sign up every year. Worldwide, the market grew 45 percent in 1991.

There are still only around 16 million mobile phones in all, 6-7 million of them in the United States. The potential future market is mind-boggling if users in countries like Germany and Japan increase to 10 percent of the population.

Development has gone farther in both Sweden and Great Britain. Operators there are already trying to expand the market to include the more price-sensitive segment of the population.

Almost SKr13 a Minute

In Sweden Televerket's "NMT [Nordic Mobile Telephone] Red" venture is definitely a low-price alternative. Those who need a mobile phone to make calls once in a while pay a higher initial fee—SKr875 compared with the usual SKr300—but are spared the quarterly fee of SKr350 in return for sticking mainly to low traffic periods such as weekdays between 1800 and 0800 and weekends.

The rest of the time it is a lot more expensive to make calls; SKr12.95 compared with SKr3.45 for regular subscribers.

That is expected to attract owners of summer homes, pleasure boats and other groups. The British operators

Vodafone and Cellnet have also used the same model to attract new customers. The companies predict that the number of mobile phone owners will increase from 1.3 million today to 7 million by the year 2000 as a result of the low-price venture.

GSM System

In November, Televerket Radio will begin public transmission in the new GSM [Global System for Mobile Communication] system. Televerket's own employees and some "pilot customers" have already found room in the new system that will be the European standard and will eventually make it possible to make calls all over Europe. But at first the system will cover only airports and the area along major highways.

Today's NMT system functions in the Nordic countries and to some extent in Estonia, Latvia, Switzerland and the Netherlands, depending on whether subscribers have the NMT 900 or 450 system.

Ericsson is the world leader in the creation and sale of systems. Motorola, of the United States, is the biggest manufacturer of mobile telephones, followed by Finland's Nokia, while Ericsson is in third place with an annual production of around 300,000 mobile phones. Several Japanese companies are also hungry competitors in the rapidly growing mobile phone market. Things are moving so rapidly that in reality none of the statistics are reliable.

Televerket Cuts Investment by One-Third

92WT0238A Stockholm DAGENS NYHETER in Swedish
1 Sep 92 p C 4

[Article by Thomas Lerner: "Worse Times for Televerket"]

[Text] *Televerket's earnings during the first six months of the year dropped by 14 percent to just 1.3 billion kroner. The continuing recession will mean that investment will drop even further.*

The Televerk concern's receipts during the first half of 1992 amounted to 17 billion kroner, a drop of 1 percent compared with the same period last year.

Profits—earnings after expenses—sank from 1,498 million kroner in the first six months of 1991 to 1,292 million in the same period this year.

"End of the year profits should be better than 1991, but even so, are unsatisfactorily low," said Televerket's managing director, Tony Hagstrom, in an interview.

On the first of July, household telephone subscription rates were raised. The extra revenues, however, were eaten up by increased interest rates. In June, Televerket was obliged to pay the state 5 billion kroner—money that had to be borrowed.

Televerket invested 3.5 billion kroner during the first half of the year, a reduction of 31 percent compared with the same period in 1991.

The bad economic times and the fact that the new telecommunications technology does not demand as many workers prompted the Televerket leadership earlier this year to decide to terminate 2,250 employees.

Ever since the Swedish telecommunications market was deregulated, Televerket has met with increased competition. Tele 2, whose principle owner is Jan Stenbecks Kinnevik, is launching its own data communications program and international voice lines. On the cellular telephone side, the Kinnevik-owned Comvik and NordicTel—owned by Trellebor and Volvo, among others—opens its new GSM [Global System of Mobile Communication] network today, Tuesday.

In order to keep pace with the ever tougher competition, Televerk is starkly reducing its costs. This decision is expected to make its full impact during 1993.

Ericsson Eyes Asia in New Market Strategy

92WT0238B Stockholm DAGENS NYHETER in Swedish
7 Aug 92 pp C3-4

[Article by Christopher L. Pettersson: "Ericsson Lives High on AXE: Tougher Times Await Overcrowded Telecommunications Market"]

[Excerpt] *"Ericsson and Telekom Malaysia have signed a contract for delivery and installation of digital telephone switches of the AXE type....The contract involves the delivery of 800,000 lines to Telekom Malaysia for installation during a five-year period. The contract is worth approximately 890 million Swedish kronor..."*

It came in a very brief business telegram, dated 21 July, through DAGENS NYHETER's fax and was passed over with a statement that was equally brief.

It must be forgiven that it has become so routine. Including this transaction, Ericsson has sold AXE switches in 87 countries and installed 45 million AXE lines in the world.

Nearly every 10th person, from Sumatra to Kallhall, who lifts his telephone receiver, is communicating through an AXE switch.

Milk Cow

AXE is Ericsson's milk cow. Last year it brought in a good 30 percent of the company's sales of 45.7 billion kroner. Ericsson's market share of Swedish export, according to DAGENS NYHETER's estimate, is an amazing 5.4 percent.

That means that AXE has an economic significance to the nation that only a handful of other export successes can match.

It is now up to Ericsson to fulfill the high expectations that it will keep hold of its world market share in telephone switches and preferably strengthen it.

The company expects the market in telecommunication switching in Europe will be saturated by 1995, a shock wave that will be absorbed by entry into China, Southeast Asia in general, and India, among others.

However, this is a dream that Ericsson is not alone in having, and it is not the king of the roost.

Overcrowded

In China, for example, Ericsson has approximately 17 percent of the market in switches, but French competitor, Alcatel, has 40 percent.

AXE is holding on and stands well in the competition, an independent European telecommunications analyst maintains. But he also points out that it is an overcrowded market in which profit margins are falling.

In Ericsson's favor is the fact that the company's largest markets, such as Scandinavia, England, and the United States have the smallest margins.

"Ericsson is positioned at least as well as most of its competitors," said the analyst.

But when a new generation of high-speed switches come into use in the middle of the 1990's, profit margins will likely shrink even further, the critic asserts. This could be a matter of margins between 5 and 10 percent.

It is, once again, the exceptional overcrowding in the field, in which 10 or so large companies in the world are after the same market, which means that inevitably someone must lose out.

A Loss

Ake Stavling, economic director at Ericsson, believes that the combination of switch sales, the so-called public telecommunications, and the expanding mobile telephony will continue to be a winning formula, despite the fact that the company registered a loss of 223 million for the first quarter of 1992.

"It is AXE, with its variable applications, which is the biggest product. But mobile telephony and radio technology are beginning to become more significant. In these, we are world leaders," said Stavling.

In Ericsson's annual report for 1991, radio telephony accounted for almost a quarter of the firm's receipts, 12.4 billion kronor compared with public communications which accounted for 21.9 billion.

But Ericsson could have problems also in the area of mobile telephones. Today, Ericsson certainly has nearly half of the market in the so-called analog mobile telephony, but for the new digital generation a new common standard is in effect which makes all of the competitors products easily interchangeable.

Not Bound

In other words, a customer is not bound to continue to buy Ericsson, as was the case with the generation of mobile telephones that made the company a world leader.

"Ericsson will have difficulty maintaining its position in the mobile telephone market," the international telecommunications analyst told DAGENS NYHETER.

That means also that Ericsson's advances in the realm of mobile telephones have extracted a high price. The company has been overambitious in its price-setting, selling cheaply in order to obtain a monopoly position. [passage omitted]

TURKEY

Avrasya TV Programs Said Unsuitable for Turkic Republics

NC2809124792 Istanbul GUNAYDIN in Turkish
21 Sep 92 p 8

[Report by Osman Avci]

[Text] Rize—National Education Minister Koksal Toptan said that Turkey has established close ties with the Turkic republics, but the television programs being broadcast to these countries are very bad and threaten to harm these relations.

Toptan, who visited his home district and village for the first time after being appointed education minister, touched on the Avrasya broadcasts at a news conference before leaving Rize. He said: "Starting with the Avrasya project, Turkey must generate new policies in its relations with these countries. The television broadcasts for the independent Turkic republics are so bad they cannot be watched. This station must broadcast programs suitable for the special characteristics of these countries. Because of controversial programs and salacious films, this station is not being watched in those regions. Certain ideologies are spreading in these countries. For this reason, great care should be shown in selecting the programs. Everything could come to naught with a wrong move."

Indicating that preparations have been completed for receiving students from the Turkic republics who will study at higher education institutes in Turkey, Toptan said: "We estimate that 5,000 out of the 7,000 we accepted for higher education this year will come to Turkey. So far, 1,000 students have arrived for intermediary education."

UNITED KINGDOM

British Telecom World Market Plans Leaked

92WT0239 London THE DAILY TELEGRAPH in English
1 Sep 92 p 18

[Article by Monica Horten: "BT's Cyclone Project Runs Into a Storm"]

[Text] British Telecom's 500-million-pound plan to capture new international markets could be jeopardised by organisational problems and the lack of a tight enough customer focus, BT critics say.

Leaked details of the plan, code-named Project Cyclone, were published in THE WALL STREET JOURNAL two weeks ago. BT refused to comment, but internal sources confirmed that the company intended to install telephone exchanges from the Canadian company Northern Telecom in London, Paris, New York and Tokyo.

Large data network switches would also be located in these cities, by 2002 to provide three types of services a packet data network under BT's global network services (GNS); Syncordia, BT's "outsourcing" company which designs and manages customers' systems; and new style international phone services.

BT will use Northern Telecom's DMS exchanges, which are considered better than the System X's now used in

Britain. International credit card calls and Freephone numbers will be available, and BT also hopes to sell "broadband" network services.

BT's competitors have not expressed surprise at its plans. "If BT is going to achieve with Syncordia what it said one year ago, then it will have to spend this kind of money," said a spokesman for Infonet, the network owned by MCI and 10 other companies.

Infonet and two other American companies, US Sprint and AT&T, also hope to provide advanced services across national borders as soon as regulations allow. AT&T is understood to be building a global system similar to BT's. Sprint will provide services by cooperating with others, and will not own an entire network.

The rewards are high: Audrey Mandela, vice-president of the market researchers Yankee Group, said new phone services for business could become a multi-billion pound market worldwide.

BT's critics suggest the company does not have a coherent organisation to tackle the global market. BT last year disbanded BT international in favour of a new structure built around business and residential customers. Only the chairman, Iain Vallance, can coordinate all activities, but he cannot devote himself to international markets.

At MCI, BT's international marketing is described as "trying to turn an elephant in a bathtub without spilling any water." David Bland, general manager of MCI International's London office, said: "Cyclone talks about technology, but it does not talk about the customers. We believe that things which aren't clearly focused on the customer can't survive."

BT's new network will build on recent investments in GNS and Syncordia. But Syncordia did not get off to a happy start and earned itself the nickname Discordia.

New Generation of Microchips Developed 92WT0229X London THE DAILY TELEGRAPH in English 10 Aug 92 p 26

[Text] British Telecom has teamed up with American manufacturer Motorola to develop a new generation of microchips for videophone systems. The chips are being

designed to go into personal computers, but future products could also include wireless video devices.

Videophone systems fitted inside personal computers mean that people can not only see the person they are talking to but point to other things on the screen as well. The video picture is in one corner; you can draw on the blank part of the screen and they will see the picture building up as you compose it.

Early versions are already coming on sale: IBM has developed a product with specialist company Picturetel, which was recently launched in America. It costs \$35,000 (around 17,500 pounds sterling).

But this is too expensive for many people and manufacturers are racing each other to find cheaper ways to make it to reach the mass market. At stake is a potential market of 500 million pounds sterling in product sales.

BT and Motorola believe that their design could get them ahead in this worldwide race. They plan to put all the necessary functions, including the compression and decompression of the video image, on to a set of three chips and claim that the picture quality specification developed by BT at its Martlesham, Suffolk, laboratory is particularly advanced.

The new systems built with these chips could pave the way for more advanced uses of videophones. For example, you could have a video conference-call with six people in different locations all dialling in. And a wireless video network is already being tested at BT's Martlesham laboratory using new digital radio technology.

For Motorola, the chip set will be a strategic product in its semi-conductor division. The company will dedicate researchers in four laboratories in America, Israel and Europe. It will be available in 1994, and will be offered for sale to other manufacturers in order to recoup development costs estimated to be tens of millions of pounds.

But the competition could get there sooner. Rival semi-conductor manufacturer Intel, working together with Picturetel, expects to have a similar chip set ready for next year. And American phone company AT&T says its chip set will be ready in the last part of this year.

Picturetel says it will have products using these chips manufactured around six to nine months later.

NTIS
ATTN PROCESS 103
5285 PORT ROYAL RD
SPRINGFIELD VA

22161



This is a U.S. Government publication. Its contents in no way represent the policies, views, or attitudes of the U.S. Government. Users of this publication may cite FBIS or JPRS provided they do so in a manner clearly identifying them as the secondary source.

Foreign Broadcast Information Service (FBIS) and Joint Publications Research Service (JPRS) publications contain political, military, economic, environmental, and sociological news, commentary, and other information, as well as scientific and technical data and reports. All information has been obtained from foreign radio and television broadcasts, news agency transmissions, newspapers, books, and periodicals. Items generally are processed from the first or best available sources. It should not be inferred that they have been disseminated only in the medium, in the language, or to the area indicated. Items from foreign language sources are translated; those from English-language sources are transcribed. Except for excluding certain diacritics, FBIS renders personal names and place-names in accordance with the romanization systems approved for U.S. Government publications by the U.S. Board of Geographic Names.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by FBIS/JPRS. Processing indicators such as [Text] or [Excerpts] in the first line of each item indicate how the information was processed from the original. Unfamiliar names rendered phonetically are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear from the original source but have been supplied as appropriate to the context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by the source. Passages in boldface or italics are as published.

SUBSCRIPTION/PROCUREMENT INFORMATION

The FBIS DAILY REPORT contains current news and information and is published Monday through Friday in eight volumes: China, East Europe, Central Eurasia, East Asia, Near East & South Asia, Sub-Saharan Africa, Latin America, and West Europe. Supplements to the DAILY REPORTs may also be available periodically and will be distributed to regular DAILY REPORT subscribers. JPRS publications, which include approximately 50 regional, worldwide, and topical reports, generally contain less time-sensitive information and are published periodically.

Current DAILY REPORTs and JPRS publications are listed in *Government Reports Announcements* issued semimonthly by the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 and the *Monthly Catalog of U.S. Government Publications* issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The public may subscribe to either hardcover or microfiche versions of the DAILY REPORTs and JPRS publications through NTIS at the above address or by calling (703) 487-4630. Subscription rates will be

provided by NTIS upon request. Subscriptions are available outside the United States from NTIS or appointed foreign dealers. New subscribers should expect a 30-day delay in receipt of the first issue.

U.S. Government offices may obtain subscriptions to the DAILY REPORTs or JPRS publications (hardcover or microfiche) at no charge through their sponsoring organizations. For additional information or assistance, call FBIS, (202) 338-6735, or write to P.O. Box 2604, Washington, D.C. 20013. Department of Defense consumers are required to submit requests through appropriate command validation channels to DIA, RTS-2C, Washington, D.C. 20301. (Telephone: (202) 373-3771, Autovon: 243-3771.)

Back issues or single copies of the DAILY REPORTs and JPRS publications are not available. Both the DAILY REPORTs and the JPRS publications are on file for public reference at the Library of Congress and at many Federal Depository Libraries. Reference copies may also be seen at many public and university libraries throughout the United States.